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Timber and Timber Trees.

NOT very long since we noticed at some length (p. 699, *ante*) an exhaustive French treatise on wood under the title of "Les Bois, indigènes et étrangères." We have now an English treatise with precisely the same title, of nearly the same extent, and of nominally the same scope and intention,* the result of the long and varied experience and knowledge of the present timber inspector to the Admiralty. We say of "nominally" the same scope, for no one who has at all compared English and French scientific treatises on similar subjects would ever expect them to be treated from quite the same point of view or in the same manner, even when the data were precisely similar. MM. Dupont and De la Grye, the authors of the French work, commenced, with true French philosophical exactness, with the question what a tree was, what was its place in the economy of nature, &c., and touched on various other subjects very interesting, but theoretically rather than practically connected with the main object of the work. Mr. Laslett goes, with true English directness, straight to the point, contents himself with giving facts and statistics, and leaves his readers, if they choose, to theorise for themselves. His practical information and suggestion ought to be extremely valuable, based as it is not only on the experience of many years in judging and experimenting on timber furnished to the royal dockyards, with all the opportunities there presented for experiment on an extensive scale, but also on the results of various expeditions carried out under Governmental sanction for the detailed examination of and report upon foreign timbers which it was thought desirable to bring into the English market, or which had been offered for it. Endeavouring, as he infers in his brief preface, to avoid that which is purely scientific and botanical, and which has no practical application to the wants of the shipwright or carpenter, he has sought "to concentrate into one form all the information that books and long experience could give, and so to arrange the materials as to make them intelligible and acceptable alike to the master-builder and apprentice."

The two chapters on the growth and structure of trees, which commence the book, though retailing for the most part only what is known to all who have given any attention to the subject, are so clear and comprehensive, in the description and illustrative diagrams, that any one considering them attentively may gain in half an hour a sufficiently accurate and comprehensive notion on this part of the subject to form a basis for most practical purposes in connexion with the use of timber. The only point we need specially remark upon, as a little out of the way, is as to the relation between the rate of growth, by which we mean here the amount of formation of wood in a given time, and the quality of the timber. Mr. Laslett has found that, in regard to oak-trees, "those which form their wood most rapidly under ordinary conditions of growth are the best in quality." This is illustrated in the table given (p. 17) of the number of annual rings found in a given diameter of the stem in different examples from various species of trees, from which it appears that, while an average specimen of English oak shows about twenty-two rings in a diameter of 6 in., thirty-four in a diameter of 1 ft., and so on in proportion, some remarkably fine specimens, as to quality as well as growth, showed only twelve and twenty, thirteen and nineteen rings respectively in the same diameters; in other words, they increased their thickness at nearly twice the normal rate annually; and from this and other similar data the author is disposed to think that the rule holds in every species of timber, and that such trees are not only the best, but the most durable. Before quitting the chapters on general growth and structure, we may note what the author says as to the mutual effects exercised by trees on their locality, and by the circumstances of the locality on the trees. Those in sheltered places run up quickly and leave long stems, from the tendency of the tree to seek the light and air; on the other hand, those which are allowed to grow in open and exposed positions assume, oaks especially, a more natural and unrestrained growth displayed in a greater redundancy of the lower branches, which, "meeting no obstacle to their development, assume every variety of curve, and produce timber which is especially valuable for naval purposes." Of the effect of situation upon growth curious examples may be seen sometimes. We noticed, not long since, in a narrow glen in Wales, a birch-tree, which grew up from the bottom of the glen, and had sent up an extraordinarily long, slender, and branchless stem, in its effort to arrive at the light, and which only condescended to send out branches when it attained the level of the higher overhanging trees which shut out the light from it. The long bare pole of the trunk swayed with the slightest breeze, as if the whole must give way, though it had evidently stood for years in those proportions. In Bickley Park, near Chislehurst, there is a locality, of small extent, where all the trees show a *penchant* for splitting into branches, and apparently almost into separate trees, immediately on leaving the ground. Scarcely a stem is to be seen. There is nothing apparent in the locality to account for this singular and consentaneous vagary, which, however, must have a cause. In speaking, on the other hand, of the effect of trees on the locality, Mr. Laslett says,—

"It has long been supposed that the presence of trees tends directly to keep up the water supply, and that the clearing of large forests results, in time, in the drying up of all the springs and water-courses in the neighbourhood. That such an effect is produced is certain, as attention was lately drawn to it by the condition of large tracts of land in the South of France and other districts, which, though long celebrated for their fertility, were rapidly becoming valueless. The change in the nature of the soil, consequent upon the partial drying up of all the sources of water supply, was proved to have commenced when the trees had been removed. At the same time it is said that, in places where there has always been a deficiency of water, the extensive planting of trees has remedied the defect."

Mr. Laslett next deals with those plagues of the worker in wood, "shakes"; in their three main varieties of "heart-shake," "star-shake," and "cup-shake," illustrated by sections of wood so affected, the portrait of "star-shake" forming the outer ornament also of the cover, on that system of advertising the contents of a book on its binding which is in fashion, and which we think foolish. The author does not attempt to account for the first two forms (the cup-shake arises naturally from the way in which the wood grows, and its origin is easily perceptible), but mentions teak, Cuba mahogany, and English elm as the most free from the otherwise so commonly prevalent heart-shake; while he is inclined to think that the most troublesome form of this defect, in which the shake changes its angle as it ascends, and may be found at the top of the stem at right angles to its direction at the bottom, is due to an effort of the tree (from external influence of light, &c., probably) to turn upon its base. Of star-shake he can only say, it is more frequent in trees which have grown on either a sandy or a rocky soil, than in those which have grown upon loam or stiff clay. This, and the fact that star-shake can often be detected while the tree is growing, from the slight swelling made by the lips of the crack at the surface, puts it out of the category of artificial causes; but in regard to the others, and more particularly cup-shake, we would ask whether it is satisfactorily proved that the method of felling trees has nothing to do with inducing or at least exaggerating these faults in the wood. The authors of the French book we previously referred to, are contemptuous, in a passage we quoted at the time, in regard to the prevalent way of felling trees with the axe, and letting them come down with a heavy fall (they recommend the use of the saw in felling); and certainly one would say that nothing could seem more likely to cause or increase that disintegration of some of the rings which is called cup-shake than the violent fall of a heavy tree. The very word "shake" seems almost to imply that the term was originally given under some such impression as this. From the following chapter on the "Selection of Timber," we quote these two comprehensive memoranda:—

"Bright-looking timber is better than dull, and that which is smooth in working better than the rough or woolly-surfaced."

"The heart of trees having the most sap-wood is generally stronger and better in quality

* Timber and Timber Trees, Native and Foreign. By Thomas Laslett, Timber Inspector to the Admiralty. London: Macmillan & Co. 1875.

than the heart of trees of the same species that has little sap-wood."

In experimenting during a long period upon the strength and quality of various woods, Mr. Laslett has used a very systematic process, and the exceptional advantages he has had from his position in connexion with the royal dockyards have enabled him to formulate results of tests upon a great variety of woods, including some rare and at present scarcely known species of timber, which may possibly at a future day be required for building purposes in this country. Considering that tests on very small pieces are not to be relied upon, in which we quite concur with him, he adopted a stated size for all the pieces of wood to be tested. The tests for transverse strength were in every case conducted with pieces 2 in. × 2 in. × 84 in., each of which was placed on supports 6 ft. apart, and then water was poured gradually into a scale suspended from the middle until the piece broke, the deflection at 390 lb. being noted in each case, as well as the breaking weight. After this a piece 2 ft. 6 in. in length was taken, when practicable, from one of the two pieces broken by the transverse strain, and tested for tensile strain by means of a powerful hydraulic machine, "the direct cohesion of the fibres being thus obtained with great exactness. Further, for the purpose of determining the proportions of size to length best adapted for supporting heavy weights, a great many cube blocks were prepared, of various sizes, as also a number of other pieces of different forms and dimensions, which were then, by the aid of the same machine, subjected to gradually increasing vertical pressure in the direction of their fibres, until a force sufficient to crush them was obtained." When we say that tables of these experiments are added to every important species of timber mentioned, it will be seen what an extent of reliable statistical information is comprised in the book. We may add that in regard to the most important to us, at present, of all timbers, oak, Mr. Laslett, being impressed with the want of information which exists on the resistance of British oak to a vertical crushing force, has directed a number of experiments towards this special point, the results of which are given in a considerable variety of instances.

We may note a few special observations on various points touched upon. Speaking of oak, the author refers to the fact that oak, in order to secure the bark at the period when it is of most chemical value to the tanner, is commonly felled in the spring when the sap is rising, in contradiction to the usual practice of felling when the sap is down in winter. The superior commercial value of the bark in spring must necessarily have its effect, yet it would appear from the statistics collected by the author (p. 68), that the tanner has been somewhat unduly considered at the expense of the shipbuilder and the architect. Several cases are here adduced of the remarkable longevity of the framing of ships built with winter-felled oak; one being the *Royal William*, built at Portsmouth in 1715–19, and which, after being slightly repaired at three different times, was taken to pieces in August, 1813, after a service of ninety-four years, when not only was the wood in remarkable preservation, but the iron fastenings, above the water-line, were in general good, proving that winter-felled oak is marked by an absence of the acrid juices which in this wood, under other circumstances, exercise a deleterious effect upon iron. It would seem, however, that the English wood-cutter, or wood-owner, is influenced by the obstinacy of habit, as well as by pecuniary considerations, in the spring-felling of oak, for it is on record that the authorities, in 1717 or 1718, offered 5 per cent. advance in price for winter-felled oak, as a compensation to the contractor for the loss of the bark, but, as we are led to infer, without much effect; and the author adds in a note,—"A much higher premium than 5 per cent., in addition to the contract price of spring-felled oak timber, was offered and paid by the Government a few years since for winter-felled oak, without, however, being able to obtain more than a fraction of the quantity required for the royal dockyards." The contractors might perhaps think that the determination of the Government to pay extra for winter-felled oak would be only temporary, whereas the demand of the tanning trade was necessarily permanent. But the fact that there is not oak enough for supplying the most exacting requirements of the constructor without depriving the tanner is really to be laid to the door of the Government itself, who, as we have before this observed, have neglected any systematic encouragement of the continuation or extension of oak-growing, and have thus allowed a splendid building material, and a considerable source of national wealth, to be wasted through want of foresight and prudence in dealing with it.

Among the peculiarities of timber mentioned are those of the Greenheart and Sabicu; in the former of which the sap-wood cannot be distinguished from the heart-wood in appearance, and is only certainly discriminated by the assistance of a tell-tale worm which bores as far as the sap-wood, and there always stays its course: a curious instance is mentioned of the detection of sap-wood in this way by cutting a thin section from a log which an experienced judge had pronounced to be all heart-wood. The resistance of Greenheart both to transverse, tensile, and crushing strain is greater than that of most other woods, but in its behaviour under the crushing test it shows a peculiarity shared, the author believes, only by Sabicu; "it bears the addition of weight after weight without showing any signs of yielding; and when the crushing force is obtained, it gives way suddenly and completely, with a loud report, nothing being left but a mass of shapeless fibres." Such a peculiarity seems more like the behaviour of a granulated or crystallised than a fibrous material. Two foreign woods which Mr. Laslett seems to think might have more attention among English constructors are the Tewart, a variety of the Australian white gum-tree, and the Jarrah, a mahogany tree of Western Australia. The former is thus particularised:—

"The wood is of a yellowish or straw colour, hard, heavy, tough, strong, and rigid; the texture close, and the grain so twisted and curled, as to render it difficult either to cleave or to work. It is a very sound wood, possessing few or no defects, with the exception of a mild form of heart and star-shake at the centre, which would necessitate a small amount of waste, if it were required to reduce the logs into thin planks or board; but if employed in large scantlings, it will be found a most valuable wood, especially where great strength is needed.

The Tewart shrinks very little in seasoning, and does not split while undergoing that process; it is also characteristic of this wood that it will bear exposure to all the vicissitudes of weather without being in any but the least degree affected by it. I have known it subjected to this severe test for fully ten years, and when afterwards converted, it opened out with all the freshness of newly-felled timber."

Though used in shipbuilding, this wood is almost unknown in civil architecture in this country, and is recommended by the author for such uses as piles for piers, supports in bridges, and the framing of dock-gates, "as it withstands the action of water, and is one of the strongest woods known, whether it be tried transversely or otherwise. But it would probably be found too heavy for use in domestic arts." The Jarrah is a wood with noticeable qualities more in regard to shipbuilding than civil use. It is said to be capable of use with iron without injuring either material, and that it bends well without steaming; but is very dependent for its quality on being cut at the proper time of year. "Some three or four years since (about 1871)," adds the author, "the Western Australia Timber Company were busily engaged in the forests preparing a large quantity of jarrah for exportation. The company professes, I believe, to select only the best trees, and to cut them at the proper season; the deliveries should therefore be of the very best sort the country produces. I have earnestly looked for sample cargoes to arrive in the London Docks, but up to the present time (1875) none of any importance have been imported." We may notice in passing that in a short chapter on that historic tree, the cedar of Lebanon, the author betrays great scepticism as to its reputed age, and, indeed, cuts it down by some ruthlessly-handled statistics (as to rate of growth, &c.,) from 3,000 years to an average of 400 years of life. The scarcity of the tree renders it of no consequence commercially. The less poetic but widely-extended and useful family of pines receive due attention, and a great deal of practical information upon them is condensed into the chapter treating on the subject. We must recommend special attention to the chapter on the seasoning and preservation of timber, which contains suggestions and directions such as, although in themselves apparently merely the natural application of common sense and experience, are often neglected. For these and many other things we refer the reader to Mr. Laslett's book, which deserves every recommendation as a sensible, comprehensive, and practical treatise, dealing as fully with the subjects as its limits will permit, and making no pretence to anything beyond its real and professed aim, and which should be in the hands of all who are practically interested in the importation or constructive use of timber.

THE SANITARY CONDITION OF INDIA.

At an opportune time, when the Prince of Wales's tour has been marred by the presence of a virulent epidemic in the Southern Presidency of India, a bulky collection of papers bearing on the sanitary condition of the country has been issued from the India Office. Few persons would expect that the picture which they present would be a bright one. India, the supposed birthplace of cholera, the home of fever, the haunt of the plague, cannot be a healthy land; but, on the other hand, few persons who have not visited it, or carefully studied some such collection as the present, would suppose that Nature deserves so little blame for the excessive mortality, and man so much. In comparatively recent issues we have noted the sanitary improvements which have either been proposed or effected in the three Presidential cities,—Calcutta, Bombay, and Madras; and have shown the state of affairs in these great centres of population before the health officer and the sanitary engineer interposed to save the crowded masses from wholesale destruction by pestilence. But our revelations were weak compared with those given in the present volume, which represents Hindostan as a very sink of corruption, full of filthy villages and still filthier towns and cities, with native inhabitants who do not seem to have the faintest ideas of cleanliness either as to their persons, their dwellings, or their communities. Unfortunately, their Anglo-Saxon conquerors and rulers have hitherto had little cause to boast of their good example which they have set before the Hindoo and the Mahommedan. The cantonments and barracks, the gaols and hospitals, and, in many instances, even the residences and palaces of the British, are deplorably unhealthy, and show an utter disregard of those simple provisions, without which life in such a climite cannot be rendered safe or comfortable. True, sanitary science is a plant of comparatively recent growth; but it has taken such deep root and borne such good fruit in Europe, that it might have been expected that Englishmen would have sooner perceived the advantages of introducing and fostering it in India, where disease is so virulent and proves so fatal, while its causes are so patent and so easily removable.

To begin with the cities. In Calcutta 65 per cent. of the mortality is due to zymotic diseases, 40 per cent. being occasioned by various classes of fever. The local officer of health has no difficulty in discovering the cause. In his report for 1873 he says that the whole native town is in such a condition that to him it is a marvel how human beings can exist in an atmosphere such as pervades a vast number of places not far removed from the main streets; and cites the account given in 1834 by the late Sir Ranald Martin, to show that as matters were then so they are now. Sir Ranald says: "There are not six beegahs of soil occupied by natives which do not contain marsh and other concentrated sources of periodic fevers," and the officer of health, while despairing of obtaining anything like a real improvement under the existing municipal laws, adds, "I shall never cease to draw attention to the present state of things, which absolutely nullifies the benefit of the water supply and drainage operations." We have already described these great works, and their sanitary effect in the limited area with which they deal is very great. But the great cause of disease remains, and is perpetuated by the inactivity of the justices. They have the power to compel the owners of unhealthy houses and places to improve them, but have hitherto allowed it to remain almost inoperative, and hence the poor people continue to suffer. Mr. Clark, the sanitary engineer, proposed to make a beginning of improvements by constructing a model native village, but this has not been done. It is, however, satisfactory to learn that the native proprietors, urged forward by mutual rivalry, are voluntarily beginning to improve their bazaars and markets. We have mentioned insanitary hospitals; and the death-rate in the Calcutta hospitals amounts to 13·2 per cent. of the cases treated. The Medical College Hospital is one of the worst. The building was constructed so recently as 1852-53, and the results of operation cases treated in its wards were so unfavourable as to call for a special inquiry eight years ago. Externally, the building has a very fine appearance, and rather resembles an art gallery, or a splendid municipal building, than a hospital. Its cost must have been out of all proportion to the object for which hospitals are erected, and the Army Sanitary Commissioners

say:—"Its interior arrangements are about the very worst that were ever embodied in a hospital plan. With certain alterations, it might be used for any purpose but a hospital, for which its destination could hardly have been discovered until after having seen patients in it." The wards are in two floors over a basement, also used partially on emergencies as wards. On each floor there are seven large wards, from 21 ft. to 22 ft. wide, and about 70 ft. in length. But all the wards virtually communicated originally with each other by arches in the middle of their length, and the windows are at opposite ends of the wards, 70 ft. from each other, with the beds arranged down the dead walls between them. It appears also that the different floors communicated directly with each other by means of the staircases, used alike for the living and the dead. Besides, the site was a bad one from want of drainage, and the external air, from which the wards had to be supplied, was fouled by stagnant water and filth in drains and holes. Perfect segregation was impossible, and Dr. Fayrer, now in attendance on the Prince of Wales, who was for a long time senior surgeon and Professor of Surgery there, says:—"The natural results followed; osteomyelitis, pyæmia, and other manifestations of toxemia followed and added largely to the mortality," and he adds, after all had been done that could be done,—"Radical improvement is impracticable in the present building." This opinion is indorsed by the Army Commissioners, who say:—"The only rule to be safely adopted is to place as few beds in the building as possible, or, still better, to cease to use it. It is not suitable for a hospital, still less for one attached to so great a medical school."

In Bombay, the death-rate from fever, during 1873, is given as 39·2 per cent. of the total deaths; and this high mortality is attributed by the officer of health to dampness of the soil, and of a great part of the island from want of subsoil drainage, and to the state of the flats, which are described as "a filthy and unwholesome swamp." The chairman of the municipality says, "as regards scavenging, Bombay is one of the cleanest cities in the world;" but if it is so in this particular, it is not so in other respects. Its drainage is still very defective, and of Walkeshwar, which ought to be the healthiest part of the island, and in which many Europeans reside, the officer of health says:—"The advantages bestowed upon it by nature have been more than outweighed by the carelessness of the inhabitants; the most ordinary sanitary laws have been neglected and despised by them; neither the fear of death nor disease has roused them to keep watch over and attend to the cleanliness of their compounds, and, so long as nothing offensive met their eyes, so long did they rejoice over and flatter themselves on the much better chances of life they had than their poor neighbours in the town;" and another authority adds:—"The sanitary condition of the hill is disgraceful, there is not a single drain on it. The sulliage is allowed to run away until it is absorbed into the earth, and this absorption has gone on to such an extent, that every pore has now become choked." If the statements in these reports are correct (and being official there is no reason to doubt them), Bombay and Calcutta milk must be a very peculiar commodity. The health officer of Bombay states that there are eighty-one cow-houses in the city, containing about 2,000 milch cows, and, from measurements made of these places, it is shown that in the great majority of them less than 300 cubic feet of space is provided for each cow, or about a fifth of the accommodation usually allotted to every occupant of an English cow-shed. In twenty-six cow-houses the people in charge live above the stalls, and it can easily be believed that "the heat and stink are dreadful." It appears also to be a habit to feed the cattle on stable-refuse and horse-dung, on the ground that it increases the yield of milk, and the dodge of giving them a lot of water to drink immediately before milking is practised for the same reason. The result is that the milk is poor, and rinderpest is rife, while the general health of the people suffers. The water-supply, although not so bad as it once was, is in many places equally abominable with that of milk. Writing on this subject, the officer of health says:—"That our well-water should be impure cannot be a matter of surprise to any one who has examined the ground around the wells. Not only do the people who come for water bring dirty vessels, but they often wash themselves over the well; the ground immediately around is saturated with waste water from washing, part of which must soak into the well. The tops of the wells are also open, and dirt or filth of any description can either fall or be thrown into them without let or hindrance." We could add many other examples of pollution, but the whole story is told in the following sentence from the report of the Army Sanitary Commission, dated so recently as the 25th of June, 1875:—"The great want of Bombay is a good sewerage and drainage system," and the Commissioners add:—"The key to future progress lies in carrying out the requisite works without delay."

The reports of the Madras Municipality and Health Officer had not been received at the India Office when the compilation before us was made, so that we have nothing to add to our brief picture of the city when lately describing Mr. Clark's new drainage scheme; but the filth of Black Town and St. Thome, and the liquid abominations of the Cooum and the foreshore, are too apparent to need official condemnation to urge on sanitary improvement. We could multiply sickening descriptions of Indian cities really *ad nauseum*; but shall merely add a few further details to show how prevalent the evil really is. The ascertained death-rate in the Punjab cities is between 40 and 93 per 1,000, and for comparison it may be stated that the death-rate of London averages 24·16 per 1,000. Of Delhi it is said that much is being done to improve the city, but in addition to structural alterations the chief disease-causes requiring removal appear to be an old and very bad system of sewerage and unwholesome water-supply. Peshawur, we are told, has no proper system of sewering or draining, and, to sum up all, Dr. De Renzy, the Sanitary Commissioner, says:—"There is hardly a large town in the province whose water-supply does not furnish the most unmistakable evidence of being contaminated with sewage. There are open sewers which carry away a portion of the fluid refuse, but most, even of the fluid refuse, sinks from generation to generation into the soil on which the people live. . . . . When the air is at all damp, and rain has recently fallen, it is impossible for any one not hardened by habit to endure foul smells, to go into the back streets of cities like Delhi, Lahore, and Umritsur, without experiencing a sense of depressing and sickening nausea. . . . . Works of water-supply and sewerage are the great wants of the Punjab towns, and without them it is idle to hope for any serious reduction in the pestilential death-rates." In the North-west Provinces things are little or no better. Cawnpore has a sort of imperfect system of purification, but how imperfect it is may be guessed from the fact that when the sanitary officer last inspected the public latrines, he condemned them as a public nuisance and source of ill-health. Indeed, he discovered places where the fœcal matter taken from them was covered with so thin a coating of earth that it was considered unsafe to walk there. Of course such spots not only served to pollute the subsoil and subsoil water, but were rendered unfit for building purposes for many years. In Allahabad there is a large and costly conservancy establishment, but sewage impurities are still buried in the ground and impure liquids drain into it. Filthy houses, cess-pits, and impure water continue to exist there as elsewhere. Lucknow has no drainage; all the foul water from houses, &c., passes into the subsoil, to cause malaria, and pollute the well-water. The Central Provinces appear to be best cared for as far as sanitation is concerned, while the condition of the cities of British Burmah, our latest acquisition, is indescribably offensive.

If the cities and towns in which there are a considerable number of European residents are bad, the villages and smaller towns which are tenanted solely by natives are naturally a very great deal worse. No matter to which province we turn, their condition is the same. Here are a few samples:—Bahadurgarh.—"Town surrounded on all sides by immense holes, some receiving the waters of the Sabi, and some the town drainage. Wells inside the town all saline, not drinkable; wells outside mostly holes, some supplied by town drainage. Water swarms with animalcules, which have to be drained out before use. Excessive sickness. Death-rate, 76 per 1,000." Furreedabad.—"Mud huts of the poorest description, greatly crowded; narrow passages, through which two persons could not walk abreast; town filthy; were it not for the scavenging of pigs, would be uninhabitable from stench." Mahudpoor.—"Wells in the ground saturated with filth. Water, of course, abominably impure. One well is close to a ditch which serves as a receptacle for the fluid filth of the village." Descending to the solitary dwelling, we find it no better. The Indian huts are about as miserable places of residence for human beings as could be provided. They are built and repaired by those who live in them. Ill-shaped, unplastered mud walls enclosing one little room, the floor of mud in no way raised, the roof a thin grass thatch or covering of poor tiles, form the houses of the millions of Ind. Inside there is positively nothing in the way of furniture, certainly nothing to tempt the poorest thief, and the square opening serving for doorway and window together, wants no door. Palace and hovel alike are impure and unhealthy, either from indolence or ignorance.

The barracks and gaols have already been incidentally mentioned, and a few particulars respecting them will not be out of place. Hazareebagh usually contains about 1,000 British officers and men. In 1873 its condition was so bad that a special inquiry was called for, and it was found that a great part of the station, including the spot on which the barracks stood, was a mere swamp. The buildings were ill-ventilated, ill-floored, ill-built, and not raised sufficiently to admit of natural drainage, and the roofs leaked so much that the men often found it difficult to find a dry spot for their beds under the rotten thatch. The consequence was an outbreak of typhoid, and it was only after death had set his seal upon it that the place was condemned. At Cannanore, the barracks are built at the form of a square closed even at the corners, and large latrines of very objectionable construction are placed between them and the prevailing winds. Covered drains, untrapped and badly ventilated, run through the barrack enclosure, and there is a most filthy native village, without the least attempt at conservancy, close to them; while the latrines are very badly placed—two being on the sea-face between the sea and the barracks, so that the sea-breeze is at times largely impregnated with the smell from them, and it is said that a fœcal odour is perceptible in the barracks from whatever quarter the wind may be blowing. The sea-beach, also, under the cliffs, close to the barracks, has been extensively used by the natives as a latrine; and the smell is very offensive, and quite perceptible on the plateau above. The huts in which the native regiments are quartered are much more offensive, and even the men themselves murmur when they contemplate the greater comforts of their foreign comrades. As for the gaols, a great number of them are constantly overcrowded, and the death-rate in them is very high; but, on the whole, it is preferable to be in gaol than in barracks in India, although fever, cholera, and small-pox often bring about a gaol delivery not contemplated by the authorities. Buildings, of this class at least, ought to be rendered as healthy as modern science can make them. Soldiers, prisoners, and hospital patients have no option but to remain where they are placed, and a grave responsibility attaches to those who place them in dangerous situations; whereas, if people voluntarily choose unhealthy houses, and neglect sanitary precautions, they have only themselves to blame if the natural results of disease and death follow. With the natives we have much more sympathy than with the Europeans. They are to the manner born, and are unclean, because they have forgotten how to be clean, and because their ancestors were so before them; just as the mill-workers of Lancashire refused to wash their feet because their forefathers had never done so. They inherited filth, and they propagate it. Nevertheless, it is among them that the real work of reform must begin; and it is gratifying to learn that in this, as in other matters, the Hindoo proves an apt and submissive pupil. Where the sanitary officer is at all energetic, and the collector in the least degree popular, marvellous efforts are made to please them, and persuasion is made to go much farther than punishment. Already many villages are so transformed that "the oldest resident" would not recognise them; yet a little spade labour and not much exertion on the part of the local head man have sufficed to bring about the change, In nine cases out of ten where "Sahib" is beloved, he can procure comparative cleanliness in the homes of the ryots, and can induce them to keep their streets clean, to refrain from polluting the wells, and to remove their cattle to the outskirts of the village, and he can also induce them at odd times to fill up old sink-holes as well as to refrain from constructing new ones. Public buildings should be at once attended to, whatever the cost; and as for the

towns, the more obvious measures required, apart from permanent sanitary works (which are imperatively demanded, and ought to be begun as soon as funds can be procured), appear to be rigid attention to house conservance and surface cleansing and draining, with improved water supply, tree-planting, and the like. There cannot be a doubt that many disease-causes in the larger groups of population can be effectually dealt with by such measures until the towns are brought under organised municipal institutions and systematic sanitary control.

STUDENTS' DRAWINGS AT THE ROYAL ACADEMY.

Last Saturday the paintings and other designs made in competition for the various prizes and medals offered to students by the Academy were open to public inspection in Burlington House. The subject for oil painting was a very good and suggestive one,—Elijah denouncing Ahab and Jezebel when meeting them in the vineyard they had obtained by such foul means. We should hardly say that any of the students had exhibited much force or originality of idea in their treatment of the subject; the one that struck us as most direct and forcible was one "honourably mentioned" (the students' names were not appended to the works), a very hard picture in a style of colour and execution recalling a little some of the early pictures of the pre-Raffaellite movement, but in which the figure of Jezebel seemed more characteristic and energetic than anything else among this set of designs. Nevertheless, we quite concurred, on general grounds, in the award of the gold medal to a work which, though not presenting anything very striking in conception, was certainly the most able and best-balanced composition of the set. It is noticeable that all the best designs took a realistic view of the prophet, representing him as an ordinary roughly-clad gaunt man, dignified and impressive only by virtue of the earnestness or vehemence of his manner; the old idealised "Bible-picture" type of prophet, with flowing robes and a long beard, being adhered to only in the designs of inferior general power and execution,—an indication of the tendencies of "the coming race" of painters.

The principal sculpture subject, a "warrior bearing a wounded youth from the battle-field," was illustrated by a set of models of very high average in execution, and several of which showed an evident thoroughness of thought and study as to the technical as well as the artistic conception. It was evident from one or two of the groups that the mechanical problem of the result, in action and attitude, of the weight of one figure upon the other carrying it, and the practicable method of supporting the figure that had to be carried, had been carefully thought out by their authors; and there was much to admire in the expression and feeling of more than one of the groups. Here again we believe there would be no question as to the right award of the medal.

On this latter point we hardly felt so sure in regard to the landscapes, the subject for which was the line "Under the opening eyelids of the morn" (a very nice suggestive subject again), where we half thought the first and second designs might have changed places. The landscape in the post of honour, however, was perhaps the one which showed most of an attempt actually to realise the facts of nature under the circumstances prescribed, rather than to make an imaginative striking effect; and this is perhaps what study (as such) should chiefly aim at.

The architectural drawings comprised designs for a nobleman's town-house, and a museum for a provincial town; these scarcely arrived at anything very original, though showing a high standard of drawing, and a commendable attention to plan. The award of the gold medal cannot be considered satisfactory, inasmuch as the successful competitor has disregarded the published conditions. These require that the plans should be drawn to the scale of ¼ of an inch to a foot; whereas the scale of the plans of the rewarded set is but $\frac{1}{12}$. Moreover, the elevations can scarcely be considered in outline only, as prescribed by the conditions. The author of the set marked "Thus" has probably himself partly to blame for missing a reward. His design for a nobleman's mansion shows unquestionably more talent than the selected set; but his sections are unfinished, and his perspective view represents the back instead of the front of the house, which leaves his design at a disadvantage, at any rate to unprofessional eyes. The medal set of drawings from existing buildings showed a very careful and conscientious illustration of the front and details of St. Mary-le-Strand.*

The following is a list of the awards:—

Gold Medals, with 50*l*. Scholarships and books:—Historical Painting, Ahab and Jezebel confronted by Elijah in the vineyard of Naboth, Frank Dicksee; Composition in Sculpture, a warrior bearing a wounded youth from the battle, William Thornycroft; Design in Architecture, a nobleman's town house, W. Frame.

Gold Medal.—Landscape painting (Turner Medal), "Under the opening Eyelids of the Morn," James H. Davis; travelling studentship in architecture, Bernard Smith.

Silver Medal.—Painting from the life, Alfred Phillips; copy executed in the School of Painting, John Dickinson; drawing from the life, 1st medal, Herbert A. Bone; drawing from the life, 2nd medal, Frank Dadd; model from the life, 2nd medal, Alfred Gilbert; drawing from the antique, 1st medal, Miss Kate May; drawing from the antique, 2nd medal, Henry H. La Thangue; model from the antique, 2nd medal, William H. Tyler; perspective and sciography, Henry Branch; premium of 10*l*. for the best drawing executed in the Life School, James Christie.

Silver Medals.—Architectural drawings, 1st medal, Thomas Edward Price; architectural drawing, 2nd medal, F. E. Eales.

The following extra rewards were given:—Painting, historical, 2nd scholarship, John Charles Dollman; painting, historical, honourable mention, Thomas Mat. Rooke; sculpture composition, 2nd scholarship, William J. S. Webber; architectural design, honourable mention, George Lewis Luker; Turner medal, silver, Edward Henry Bearne; Turner, honourable mention, Richard Ellis Wilkinson; painting, life, honourable mention, William R. Symons; drawings from antique, honourable mention, James Christie.

The public having been informed by paragraphs in the newspapers that admission could be had by presentation of address-card, the rooms were well filled during the day.

SOCIETY OF BRITISH ARTISTS.

Having felt compelled frequently to speak in derogatory terms of the recent exhibitions in Suffolk-street, it is pleasant to be able to note a decidedly better average of work in the present collection than we have seen for some little time. One or two of the most important works by members who possess real ability, we confess, seem a little doubtful. We cannot accept Mr. Donaldson's large picture, "The Eve of the Battle" (111), as presenting a result worth the care apparently bestowed on it; his peculiar and real, though rather *bizarre* genius in water-colour, is shown in the prismatic-looking drawing, "Indian Jugglers" (599); and we like very much his small oil-picture, "Oxford" (437). Mr. Wyllie, whose small sea-studies were generally among the best points of the gallery, has a large and very ambitious sea-picture, under the name of "Chinese Clippers," one of which makes her way in the middle distance across a seething mass of water, the foremost wave of which is driven in a great heap across the picture. It is a very bold conception in regard to design, colour, and light, but seems to fail in giving the surface and reflected light of water; still, it should be looked at. Miss M. Backhouse sends a really pretty thing in "Consider the Lilies" (188), a young, dark-haired little girl, life-size, seated, in a nearly white dress, with a red ribbon in her hair, and a coral necklace, and holding a lily; the execution is very broad and full, and the sentiment charming. In the same room Mr. Wyllie has a clever study of sand-hills and sky, and two children enjoying "The Golden Age" (288), and Miss Montalba, a good little work, a "Fidjee Island Canoe" (216). There are no large figure-subjects worth mentioning; one or two little works, such as "The Temptation" (21) of a chubby child by a plate of fruit, by Mr. C. Bauerle, and Mr. Soden's interior, showing the man who is "Down on his Luck" (22), have both humour and good execution. A variety of small landscape and idyllic subjects are worth notice, among which, Mr. Aumonier's "Returning from Work" (66), and "Lengthening Shadows" (451), the latter an original study of a corn-field towards an August evening, are admirable. Mr. Parton's "The Llugwy" (6), though hard, has something in it. Mr. C. Bromley's "End of the Weir" is a well-meant echo of the feeling of Corot; several small landscapes, by Mr. A. F. Grace, are all good; Mr. Ludovici's sketches of social scenes, though not very refined in style, are spirited; "A Wasp!" (207), for instance; Mr. A. Goodwin's "Alpine Border-land" (71) is fine; Mr. Haynes King has a very nice study of interior detail and a pretty peasant girl, under the title "When Pensive I thought of my Love" (76); Mr. Wyke Bayliss a fine study of the often-painted interior of Milan Cathedral (94); M. Girardot is pleasant and characteristic in his two pictures of child musicians, especially "Am I Sharp enough?" (326); and among others may be mentioned "Durham," by H. Dawson (43); "The Truants," by T. Charles (51); "Sea Banks, a Sketch," and a very good one, by C. Green (104); "The City Walls of Chester," by T. W. B. Knight (158), a large work very freely painted, but perhaps somewhat too sketchy for the scale, and which does *not* recall the local character of Chester to us; and "Evening," by F. Dadd. A single work by Meyerheim, "In the Castle Grounds" (171), a field of rank weeds bordered by a belt of dark plantation, awakens recollections of exhibitions of a very different calibre. However, we are only too glad to see a somewhat higher tone pervading the Suffolk-street collection, and sincerely hope it is a sign of better things beyond.

There are some good things in the water-colour room, which we have not space to particularise, but may just mention, from its peculiarity, Mr. H. Bright's study of a number of starved-looking sparrows clinging together on the branches of a tree in winter, looking querulously at a robin cheerfully chirping to them, under the title of the "Favourite of the Season" (544): as a study of birds it is curious and clever.

THE REVIVAL OF THE VENETIAN GLASS INDUSTRY.

Amongst the many interesting matters brought to our notice by the voluminous reports on the late Vienna Exhibition, one of the most instructive is an account, by Herr Jacob Falke, on the revived manufacture of Venetian glass. Venice, as we know, was the great site of the glass manufactories of the dark and middle ages, glass being made there from the foundation of the city in the seventh century. From that time its manufacture continually improved, and in 1291 the numerous establishments were removed to the island of Murano, where a guild was formed, and the secret kept with the greatest jealousy. Venetian glass enjoyed for a long time a monopoly; in more modern times, however, it was superseded by English and Bohemian manufactures; but a few years since a fresh impulse was given to its manufacture, and the old Muranese furnaces were, so to say, lighted again. During the few years that have elapsed since its revival, Venetian glass has not only again become an object of art, rivalling the old productions, but its manufacture has assumed an importance enabling it once more to enter the competition with other industries as an especial and independent product. Large quantities are now annually imported to England, and thence transhipped to her colonies, and other parts of Africa and Asia.

The first efforts made in Venice of reviving the old art of glass-making, and of restoring to the city a flourishing branch of industry, date from the year 1859. In that year, Dr. Salviati, whom we were the first to introduce in England, was enabled to interest sufficient capital for beginning the undertaking. He called in the assistance of a clever glassmaker, Lorenzo Radi, and the two, after considerable labour, succeeded in regaining the former methods of manufacture one after another. Their united efforts having thus been successful, a new and flourishing glass industry soon sprang up at Murano; all the old technical productions and forms, even the most intricate, are again put before us as new products; they find favour, and are readily bought, and an army of skilled workmen find remunerative employment.

The large manufactory of Dr. Salviati has in the meantime been transferred to a (principally English) company, but it remains under the management of its founder. We may expect, therefore, that, while he is at its head, it will neither retreat from its present standpoint of excellence nor surrender its artistic aims.

This method rests, as should be the case with all matters connected with art industry, upon the quality of the material and the excellence of the process pursued. Venetian artistic glass shows unmistakable traces of its Oriental origin, and is principally blown. Its forms, which, at its first introduction, were soon copied by other countries, are given by the hand of the skilled workman to the material, softened and swelled by heat, and are permanent, *i. e.* they are not

* Since writing the above we have heard it is not unlikely that the award of the gold medal will be reconsidered by the Council. It certainly should be so.

subsequently changed, refined, or moulded by means of the usual instrument, the wheel. Venetian artistic glass being purely hand-made, and as such, in proportion as the use of the machine and mould is dispensed with, to be considered on its own merit, has claims to be regarded as an art-product, which, in the case of English and Bohemian glass, is true only of the better descriptions of goods. Venetian glass consequently depends entirely upon the intelligence, the appreciation of form, the taste, of the workman, all which requirements are entirely dispensed with in the case of pattern-made articles.

Production carried on under such conditions, where the hand plays the principal part, has one defect; at least, it is considered so by a great many connoisseurs. While in the case of Bohemian or English glass the several pieces belonging to a set are exact counterparts of each other, the products of Murano always differ in some little detail. Many larger and more artistic objects show irregularities totally absent in the cut crystal glass. It may therefore truly be said that in this respect the former descriptions of objects are seldom perfect; but, on the other hand, it is these small defects which stamp them as the work of a practised hand, as compared with the products of the machine or mould, and which impart to them greater value in the eyes of the art collector.

This, though it is the most essential, does not constitute the sole defect of Venetian glass. The workman, once an artist, in trying to improve his handiwork, oversteps the limits of his province; he is tempted to force his cleverness as well as his material to productions which in so far exceed the measure of what may be permitted in art as to make them appear rather artificial work than works of art. This shows itself in two ways.

On the one hand, the artist, attracted by the tenacity as well as by the pliability of his material, is induced to give to the articles extremely complicated forms, and to adorn them with all kinds of decorations, which no doubt shows his cleverness, but in no wise always increases the beauty of his productions; on the contrary, it tends to give his work an extremely delicate and fragile appearance. It is through this exaggeration that a fanciful, often bizarre, character is imparted to Venetian glass which need not at all be connected with it.

The other drawback consists in the addition of colour, completely excluded in the case of the best productions of the English and Bohemian crystal glass industry. The coloured glass of the old Venetian glass-makers was first made in 1436, and continued to be manufactured until the close of the sixteenth century. In that century, lace patterns and mirrors, as well as plain glass, gilt and enamelled, were introduced. We next hear of crackled and reticulated glass, and in the eighteenth century variegated or marbled glass made its appearance. Millefiori glass is said to have been made from the rise of the Venetian manufacture, and to have descended from the Romans. In the modern application of colour, the old patterns principally are imitated, in a most varied, but generally very artistic manner; as a rule, however, the material is coloured before being wrought into the required forms, the tint being given either to the body of the article or to the parts added as decorations. Painting proper, especially of figures, such as French taste has transferred from porcelain to glass rendered opaque (the so-called porcelain glass), especially alabaster glass, is entirely absent in the real Venetian article, isolated examples and experiments forming the exception. Venetian glass objects, besides being coloured in their mass, which causes them to produce a play of colours on light falling through them,—which is especially the case with dark shades of red, blue, and green, but more so with opal glass, refracting the rainbow colours, according to the light, in a most varied form—have glass of another tint let into the clear mass by the smelting process, either in threads, which spirally surround the object, and cross each other, forming what is termed reticulated or filigree glass, or in flowers and other simple figures (millefiori glass). Thirdly, wings, buttons, rosettes, or other flowers of transparent or opaque glass, mostly according to nature, are put on, although the material is very little adapted to this treatment—the latter being a description of decoration which made its first appearance at the time of the decadence of the former period of the Muranese glass industry.

If modern Venetian glass is to maintain its position in England, greater care and taste must be shown in the general design.

PROPOSED CHANGES IN THE INSTITUTE.

AT a special meeting, previous to the general meeting of last Monday, the report of the committee appointed to consider the position of the Institute, financially and otherwise, with a view to increasing its efficiency and extending its influence as the representative body of the profession, was read, as well as a subsidiary statement by one member of the committee of his reasons for dissenting from the report of his colleagues. The further consideration of the report was adjourned to another special meeting at an early date.

The proceedings being, *pro formâ*, private, we are not, at liberty, of course, to comment in detail on the proposals of the committee; we may just say that their report, while very ably drawn up, and showing that much consideration had been given to the subject, contemplated changes, one or two of which may be more important in their results than those who suggest them have quite realised; and without adopting what we hear of as the very pronounced opposition of the dissentient member referred to, we cannot but suggest every caution in making such extensive alterations in the rules and conduct of the society as some suggestions of the committee would involve.

The report will, of course, be circulated among members, and we recommend all those of them who are interested in the present and future position of the Institute to attend the next special meeting, and insure the full consideration of the subject from every point of view before any step is taken which cannot be recalled. Some of the proposed changes, we believe, would be beneficial to the Institute—all may be so; but nothing should be done in a hurry.

DESIGNS FOR GOLDSMITHS' WORK AT THE ARCHITECTURAL MUSEUM.

THE designs sent in competition for the annual prizes offered by the Goldsmiths' Company are now on view in the Architectural Museum in Tufton-street. The prize of 50*l.* has been awarded to Mr. J. Watkins for a design for a large silver centre-piece, on a very ambitious scale, and almost architectural in its general arrangement. Upon an oblong base a large cup stands as the centre object, surrounded by four smaller cups of somewhat similar character at the angles, and two tazzas occupy the centre of each of the longer sides. The centre vase is dedicated to Homer, the four angle ones to Dante, Virgil, Tasso, and Shakspeare, and the tazzas to Ovid and Milton (an odd combination); each vase being decorated with bas reliefs on the bowl, representing scenes from the works of each poet respectively; and the tazzas similarly decorated on the upper surface. There is a definite idea thus carried throughout, which is always desirable; the general design is very good in effect, and the outlines and forms satisfactory,—the detail perhaps rather less so; but the whole design is of considerable merit, and the drawing exceedingly good. The separate vases, &c., are all drawn out full size. The 25*l.* prize for an article not exceeding 30 oz. in weight has been awarded for a design for a gold and *cloissonné* enamel casket, by Mr. J. J. Shaw; this is an article irreproachable as far as good taste goes, and in which the general effect is good as to colour combination, and the detail of the inlay is elegant; there is hardly anything that can be called fancy or originality in it, however. This quality, nevertheless, is just what we want in goldsmith's work—just what the nature of the art and the material, and the class of objects it is commonly applied to, give suitable opportunity for. There seems to be too much leaning towards the merely saleable article rather than the encouragement of artistic originality in design. Mr. Shaw's casket would be classed as a very neat article in the goldsmith's shop-window; but it would hardly attract any one looking for artistic character or novelty.

The collection of designs generally, however, is much better in regard to good taste and artistic quality than that of last year. Among the other designs a good one, very well drawn and coloured, for a challenge cup for musical contests, gold and silver with enamel figures, claims notice; the designer's name is not given. A Greek jewel casket by "Dædalus" shows very good and characteristic detail in the upper portion, and a well-designed and spirited figure subject representing the marriage procession; the feet spoil it, and are out of keeping with the rest. The same author's sheet of designs for domestic service plate is very meritorious, though we think the reaction from weak flowing curves to straight lines and circles in this kind of design has been carried rather too far. We may compare with this Mr. Hewitt's casket to be executed in silver, with majolica painted figures introduced; the general design of this is good and original; the angle figures should have something more to support than the mere thin edge of the lid; the feet, which are satyrs' faces, flat, and looking upwards, are original, and show that kind of fancifulness which is in keeping with the art. In this respect Mr. A. Smith's casket with the white griffins at the angles, though a little too odd, shows spirit and originality. Mr. Randall sends a very large and quite over-done and over-pretentious design for the furniture of a writing-table; it is spoilt and vulgarised by the attempt to do too much with every part, and to cram figures and ornament on everyhwere; but it deserves recognition for its ambition, and for the capital free drawing and tinting. There are several good designs for cups and vases; one for a vase in the Cellini style, by Mr. Christie, which is a good reproduction of the style, and very well shown in a careful coloured drawing; and a design for a "bachelor's tea-set," by Mr. Thomson, though one does not see the special bachelorhood of it, is good. The drawings are worth a visit, and, as we have said, show a decided improvement upon those last exhibited.

SUBURBAN BUILDINGS: HACKNEY.

IN our article under the above heading, on the 20th ult., we gave a circumstantial account of the construction and materials of certain dwellings in the borough of Hackney, and we incidentally alluded to the character of the new sewer constructed through the Marsh lands or borders. Our statements respecting the buildings are not disputed, but the chief surveyor of the district, by a letter which we published, endeavours to give a more favourable character to the new sewer than it deserves, on the score of construction, materials, and effectiveness. He doubts that the house-drains are as bad as we described them, but that is all, his answer being specially confined to the question of the new sewer. If we minutely described what we saw and examined, blame must rest somewhere either on the contractors or upon the surveyor, and that has not been our purpose, our sole aim being a sanitary one. We stated incidentally that "the great defect of the new sewer, which has cost several thousands, is that its fall is insufficient, and in times of flood the houses in the low-lying districts in the vicinity are in danger of being inundated. The workmanship of the sewer is on a par with other parish contracts; it alternates bad and good in formation and materials. We more particularly allude to the last and largest executed portion, which runs through a very soft and yielding bottom, and which needed a uniform adherence to the same materials and finish, and not a change in the nature of the bricks, and an absence of a backing of concrete in places." We added, that if the specifications were followed, the contractor had nothing to answer for. The chief surveyor to the Hackney Board says the last and longest portion of the work has not been constructed on a very soft bottom, but in a good, solid, natural bed of gravel, and that "the invert and side walls of the sewer, throughout its entire length, have been constructed on a solid bed of Portland cement, 1 ft. in depth at the bottom, and 6 in. backing to the side walls; also, that the whole of the arch from Hackney-wick to Homerton-road has been covered with concrete, as well as the portion of the smaller sewer where it passes through a market garden; but it was not considered necessary to cover the arch in the same manner in other parts of the line because of its greater depth in the ground and narrower span." If we are to be credited with the possession of our eyesight and our senses, we certainly saw and understood what we described. To begin with the beginning, the short and first-completed length of sewer constructed at Hackney-wick, and passing the entire length of Wallace and Windsor roads, passes through a very soft and bad bottom indeed, mostly made-up "shoot" land, and

here the crown of the new sewer, when the arch was turned, was on a level with the roadway. After the completion of the first length, the surface of the roadway above the sewer arch was raised. So high, indeed, does the sewer rise here, that the water level in it, in times of flood, must be higher than the basement floors of the houses along Wallace and Windsor roads. The houses in these streets, and the streets running parallel at the back, have no proper house-drainage, notwithstanding the new sewer, but it is fair to add they were built previously to the new sewer being made. It would be an act of humanity for the authorities to pull down the whole of these houses, for their present condition is deplorable, and they are living sepulchres to the poor occupiers. Their foundations are veritably water-logged, or, in a manner, swimming in water, and their walls, up to 4 ft. high, are oozing with chronic dampness and rankness. The new sewer here can afford no relief in draining the foundations of these houses. The state of the streets here is so bad that even the surface-drainage is not carried off, but flows betimes in upon the hall floors of these houses. Some of the inmates, to protect themselves from injury from the surface-water that flows in from the footway and streets, have raised their thresholds some inches higher than they were originally. We may also add that there are other streets besides those in the vicinity of the new sewer, in a wretched state, with sludge and filth, neither paved nor macadamised. We saw a fair bed of concrete and backing, fair materials and workmanship, in this first finished portion of the new sewer, which we would have liked to have seen carried out uniformly throughout the length of the second and longest portion commenced some months later.

The second portion of the new sewer runs through fields or marsh-meadow land, and from Hackney Wick-road to Homerton-road a by-road runs on one side. The brickwork of the arch rises here considerably above the surface of the meadow or marsh land, and since its completion the by-road that runs along parallel on the inside has been raised to a level with the top-dressing that covers the crown of the arch. No solid bed of gravel was reached here, for the bed of the sewer is but a very small depth under the surface of the soft marsh soil.

We have no wish, however, to pursue the subject further. We have awakened attention, and that will suffice.

MUSEUMS AND PICTURE GALLERIES ON SUNDAYS.

On the occasion of delivering the prizes to the students of the Liverpool Institute School on the 8th inst.,

Sir Henry Cole said, in the course of his address,—I now approach a subject on which bitter differences of opinion prevail, but I hope shall not give offence in stating my own views—I mean the use of Sunday. I will not enter on the religious differences involved in Sundays and Sabbaths, or the customs which history has made known to us. I will only attempt truthfully to relate what comes under my own personal experience, especially in London and our great towns, of the ways in which my countrymen pass Sunday—dividing them into the few rich, the numerous middle classes, and the overpowering millions of poor classes. I hate this imperfect nomenclature of classes, and use it only as expressions commonly understood. A rich man with 10,000*l.* a year may be a poor man and have no money at his banker's; and a poor labouring man, with his 20*s.* a week, may be a rich man with money in the savings-bank. The rich, relieved of their weekly work, go to church (often in their carriages) in the morning, and send their wives and daughters in the afternoon or evening. They frequent their clubs, read the *Saturday Review* or *Economist*, admire and examine the pictures they possess in their gilded homes. They go to the Zoological Gardens. The middle classes also go to church or chapel, have a good dinner on Sundays with a cosy nap afterwards, take a walk if it be fine, and spend the rest of the day in looking at the pictures in the illustrated newspapers. Both classes give their servants a holiday to go to church or chapel, if they are so minded, or to walk with a cousin. I regret to say that all I can see and learn proves to me that the millions of the poor classes do not go to church or chapel. They spend the forenoon in their only one room if they live in towns, and generally in bed. They read a penny newspaper, which, as a parish missionary told me, is "Church, chapel, and Bible to them," and they pass the evening in the public-house. Do not let us deceive ourselves. The millions of this country have ceased to be attracted by our Protestant churches and chapels, and the law cannot compel them to attend. Our forefathers before the Reformation induced the people to come to churches, and abbeys, and cathedrals, where the poor found music and pictures on the walls and in the windows. The Roman Catholic Church now makes its way with the people by the same attractions, and all creeds have done so, whether regulated by Moses among Israelites or Sesostris among the Egyptians, or by the high priests of Minerva in Athens, or, in subsequent years, by Leo X. in Rome. Human nature craves for beautiful work of God or man. The fine arts are the handmaidens of religion and gentle culture. But during the last three centuries in our kingdom we have neglected, if not despised, this craving. Fine arts are now beginning to be recognised again as humanising. If you wish to vanquish drunkenness and the devil, make God's day of rest elevating and refining to the working man. Do not leave him to find his recreation in bed first and the public-house afterwards; attract him to church or chapel by the earnest and persuasive eloquence of the preacher, restrained within reasonable limits; help him to solve the mysteries of his daily life by the simple light of his Bible, rather than puzzle and wear him with dogmas spoken during long hours; give him music in which he may take his part; show him pictures of beauty on the walls of churches and chapels; but as we cannot live in church or chapel all Sunday, give him his park to walk in, with music in the air; give him that cricket-ground which the martyr, Latimer, advocated; open all museums of science and art after the hours of divine service; let the working man get his refreshment there in company with his wife and children, rather than leave him to booze away from them in the public-house and the gin-palace.

BUILDING ON "SHOOTS."

OPINION OF COUNSEL.

At a recent meeting of the Hackney District Board of Works, the Clerk reported that in accordance with the instructions of the Board, he had submitted a case relative to the erection of dwellings on house-refuse and other rubbish, to Mr. Michael, a legal gentleman well versed in matters connected with the "Nuisances Removal Act," for his opinion thereon, which he now begged to submit.

Mr. Beck questioned the wisdom of making known the reply in the presence of reporters.

The Clerk said he agreed to a certain extent with the views of Mr. Beck, but so much had been publicly said and written concerning dust-shoots and the action of the Board in reference thereto, that he thought the opinions of counsel should also be made public. He then read the case submitted to Mr. Michael, and that gentleman's replies to the queries put to him. They were to the following effect:—1st. He was of opinion that an order could not be obtained to restrain builders from erecting houses on made-up soil which was not covered with a layer of concrete sufficiently thick to prevent the escape of injurious gases. 2nd. He did not think the Board possessed the power to prevent the letting of houses which were built upon refuse, and which were not covered with concrete under the basement floors. 3rd. He was of opinion that a magistrate would grant an order for the removal of refuse deposits of which it could be proved that the accumulation was such as to be injurious to health; but every case would have to be tried on its own merits, and the magistrate would require some direct proof that the refuse was injurious to health. 4th. He did not think the Board could legally refuse their sanction to the laying of drains for dwelling-houses in soil composed of refuse, for any danger which might be apprehended from the made-up soil could be prevented by the adoption of measures which a practical surveyor could suggest. Lastly. He believed that although the question of proper subsoil to houses was of great importance, as affecting the health of the public, yet it was impossible in the present state of the law to deal with the question satisfactorily.

Mr. Beck said the opinion of counsel amounted to this:—That the Board had no power to interfere with the erection of houses on dust-shoots. The Board were probably aware that the Metropolitan Board had in three successive sessions brought forward a Bill for dealing with the subject, but they had been unable to get it passed.

On the motion of Mr. Bowser, it was then resolved to forward copies of the counsel's opinion to the Home Secretary, the Metropolitan Board, the Local Government Board, and the Borough Members.

THE COURTS AND ALLEYS IN ST. GEORGE'S, SOUTHWARK, AND THEIR OWNERS.

A point of some importance as to the ownership of courts and alleys came before the Vestry of St. George's, Southwark, at their meeting last week. In the course of the proceedings Mr. Bayley, one of the members, drew the attention of the Vestry to the wretched state of the courts and alleys in the parish. Adverting to a case where a court was unpaved and undrained, and altogether in what he described as a lamentable state, he added that when recently he, as one of a deputation, visited a block of buildings reported upon by the medical officer, he felt ashamed that such a place existed in the district. He considered that some one was to blame in not making the owners pave the courts according to the terms of the Act, and he should like to know where the fault lay. This elicited a reply from the Clerk to the effect that he did not think either the Vestry or its officers were to blame. He observed that it all turned upon the word "owner" of the court, and they could scarcely find one. The definition of owner was that he was entitled to the rack rent. But a lessee was not the owner, and the freeholder might lease the ground, which constituted the difficulty. Mr. Bayley having quoted the Act, the Clerk observed that it was a penal one, and of course would be interpreted strictly in favour of the defendant. He had never known of a case where a magistrate would commit. Mr. Bayley intimated that he was able to cite a case where a conviction had taken place before a magistrate, and stated that he would again bring the subject forward, and prove the conviction to which he had alluded, with the view of proceedings being taken by the Vestry against these owners, in order to compel them to pave and drain the courts complained of.

ELECTION OF DISTRICT SURVEYORS.

METROPOLITAN BOARD OF WORKS.

For the then vacant district surveyorships of Bethnal-green East and Bethnal-green West, twenty-six candidates presented themselves at the offices of the Metropolitan Board, Spring-gardens, on the 10th inst. The following gives the names of the candidates, with the votes recorded for each:—

Bethnal Green West.—Preliminary voting:—A. Allom, 12; R. B. Bell, 4; T. Blashill, 29; A. Bovill, 22; J. Clarkson, 11; H. H. Collins, 26; J. W. Forge, 1; V. J. Grose, 13; J. Hebb, 2; R. C. James, 33; L. Karalake, 9; G. O. Lane, 16; W. C. Leonard, 3; H. Lovegrove, 3; R. P. Notley, 35; A. Payne, 17; J. S. Quilter, 7; R. Richardson, 3; L. W. Ridge, 10; W. Seymour, 5; T. Stone, 11; F. Todd, 5; J. G. Turner, 7; P. Wallen, 27; T. W. Willis, 20; J. Young, 13. The candidates being reduced to the six who had the highest number of votes, the second voting was taken as follows:—James, 32; Notley, 31; Blashill, 32; Collins, 23; Wallen, 21; Bovill, 17 (Bovill struck off). Third voting:—James, 29; Notley, 27; Blashill, 22; Collins, 19; Wallen, 19 (Wallen struck off, after a further vote as to which of the last two names should be retained, the votes recorded being Collins, 21; Wallen, 18). Fourth voting:—Notley, 29; James 25; Blashill, 23; Collins, 18 (Collins struck out). Fifth voting:—Notley, 26; Blashill, 20; James, 19 (James struck out). Sixth and final voting:—Notley, 33; Blashill, 8. The chairman, Sir J. M. Hogg, declared Mr. Notley to be duly elected. Mr. Notley undertook to perform the duties of the office subject to the usual conditions, and thanked the Board for his election.

Bethnal Green East.—For this district surveyorship the candidates were the same, with the exception of Mr. Notley, elected for the west district. The preliminary voting was as follows:—Allom, 12; Bell, 5; Blashill, 27; Bovill, 22; Clarkson, 13; Collins, 23; Forge, 0; Grose, 9; Hebb, 1; James, 34; Karalake, 9; Lane, 19; Leonard, 2; Lovegrove, 4; Payne, 17; Quilter, 7; Richardson, 3; Ridge, 8; Seymour, 4; Stone, 11; Todd, 9; Turner, 8; Wallen, 27; Willis, 13; Young, 16. The candidates being again reduced to the six who had the highest number of votes, the second voting resulted as follows:—James, 30; Blashill, 24; Collins, 22; Lane, 19; Bovill, 18; Wallen, 14 (Wallen struck out). Third voting:—James, 30; Blashill, 21; Collins, 19; Lane, 18; Bovill, 17 (Bovill struck out). Fourth voting:—James, 28; Blashill, 18; Collins, 18; Lane, 18. (Lane struck out, after a further vote as to which two of the last three names should be retained, the votes recorded being Blashill, 21; Collins, 18; Lane, 17.) Fifth voting:—James, 26; Blashill, 23; Collins, 20 (Collins struck out). Sixth and final voting:—James, 29; Blashill, 13. The chairman declared Mr. R. C. James to be duly elected. Mr. James undertook to perform the duties of the office subject to the usual conditions, and thanked the Board for his election.

MIDDLE CLASS SCHOOLS: ROBERT ASKE'S CHARITY.

IT would be absurd to assume that in either elementary or secondary education the condition of the United Kingdom is all that is desirable or possible, in either the number or character of our educational institutions, or in their operations and results. We have not fully attained nor are we already perfect in these things; but tides have set in that must ere long float in ample and excellent educational provision of the various kinds necessary to complete national culture and development,—elementary, secondary, technical, and scientific, culminating in the culture of the Universities.

As touching elementary education, Mr. Forster's Act was five years old last August, and the first School Boards were elected under it in the following November, Manchester, that has been so long the cradle and nursery of educational movements, leading off and electing the first Board under the Act on November 24th; Liverpool, London, and other large cities and towns following in rapid succession. It is not hyperbolical to say that splendid triumphs have already been achieved under the Act. Much more than half the population of England and Wales is under its operation, in almost all cases voluntarily on the part of the municipal authorities, as representatives of the ratepayers. Of 224 municipal boroughs in England and Wales, 113 have School Boards. Of 69 towns, with a population of 20,000 to 25,000, 42 have elected School Boards. Of 21 towns, with a population of 50,000 to 100,000, all, except "Proud Preston," have elected School Boards. Every town containing more than 100,000 people adopted the Act by resolution of its town council. The London School Board, which was elected on November 29th, 1870, has incurred much censure because of alleged extravagance. It would seem that they have a good answer to the charge. The Board had expended to Lady-day last 1,763,407*l.*; a large amount certainly, but what have they to show as a set-off? Above 200 large, commodious, and substantial school buildings, and the land upon which they are built. In these buildings nearly 600 efficient boys', girls', and infants' schools are conducted, —schools that are much superior in accommodation, equipment, scope of instruction, and teaching power, to a majority of the elementary schools in existence when they were established. The cost of land and school buildings should be put to what may be called capital account, not current expenses, which have absorbed about one-seventh of the total amount, an expenditure abundantly justified by the Board having been instrumental in bringing under instruction 100,000 children who would otherwise have been neglected, and educationally destitute. The successes of the London and other School Boards throughout the country in the matter of providing increased and improved means for elementary instruction ought to pacify the most confirmed pessimist; and these great results are being achieved in London, with a rate of about 3d. in the pound for the two half-years, against a poor-rate of more than ten times the amount.

Of late years much consideration has been given to the question of secondary or middle-class education, but not more than the importance of the subject demands. In this direction also, there have been great improvements effected of late, in management and control, in the application of existing resources, the correction of abuses and malversations, extension of the scope of the instruction given, and in better methods of teaching. The provision of increased and improved means for middle-class education is not a social or political duty as imperative as that of providing elementary instruction, the birthright of every child. Necessarily progress on this line must be slower than on the other. The School Boards obtain the funds that they are themselves to administer. The funds of existing endowments have to be looked to for the greater part for the provision of secondary education, and there are accordingly trust deeds, charters, and statutes, to complicate the administration of such funds. Reference is here made to Cathedral trusts and private bequests for educational purposes, that would probably be ample, if properly applied, for the provision of highly efficient middle schools for all who may desire admission to them.

In connexion with our cathedrals large funds have been provided by statute for educational purposes that have not been so applied. Whatever may be thought of the propriety or justice of Henry VIII. in abolishing the old monasteries, abbeys, and priories, because of alleged abuses and violations of trust, there can be no doubt that he intended to secure by the charters of the new foundations the means of a liberal education free to a certain number of youths in connexion with the cathedrals. The preamble to the charters states their purpose to be, *inter alia*, that "youths might be liberally trained, old age fostered with things necessary for living, and that liberal largesses of alms to the poor in Christ, and reparation of roads and bridges, and other offices of piety, teeming over from them, might thence flow abroad far and wide to all the neighbouring places, to the glory of Almighty God and the common welfare and happiness of the subjects of the realm." The preamble to the Act 31 Henry VIII., c. 9, preserved in his own handwriting, sets forth that the new cathedrals are established "to the intente that god's worde myght the better be sett forthe, cyldren broght up in lernynge, clerces nuryshyd in the universities, old s'vantes decayed to have lyving, allmes housys for pour folke to be sustayned in, readers of grece, ebrew, and latyne to have good stypende, dayly almes to be mynistrate, mending of hyght wayes and exhybision of mynisters of the chyrche." The statutes of the new foundations provided most liberally for the free maintainance and instruction of 212 boys, viz., 50 at Canterbury, 40 each at Westminster and Worcester, 24 at Ely, 20 each at Peterborough and Rochester; and, in addition, the free instruction, without maintenance, of 24 boys at Chester, and 20 each at Bristol, Carlisle, and Gloucester. Money now is of nearly seventeen times the value that it was in the fifteenth century, and the stipends of many of the members of the cathedral have properly gone up, but not *pro rata*, the poor scholars faring worst of all. A table published at page 51 of Mr. Whiston's "Cathedral Trusts," &c.,* is interesting and instructive. The table gives a comparative statement of cathedral incomes in the sixteenth and nineteenth centuries. Some of the figures are now, it may be, subject to correction; we quote from the figures as given by Mr. Whiston. At the foundation, the Dean of Canterbury had 300*l.* a year, that had increased to 2,050*l.* in 1849, or 6¾ times the original amount. Incomes of the prebendaries or canons increased from 40*l.* to 1,010*l.* each, or 25 times the original amount. The grammar boys have been reduced from 4*l.* to 1*l.* 8*s.* 4*d.* each. At Rochester, the dean's stipend, or rather his takings out of the cathedral fund, is more than fourteen times the original amount, and those of the prebendaries or canons thirty-four times the amount of the statutory allowances. The grammar boys remain nominally at 2*l.* 13*s.* 4*d.*, and the students at the Universities, when there are any, are reduced from 6*l.* 13*s.* 4*d.* to 5*l.* The offices of vice-dean, receiver, and treasurer are filled by canons; the bedesmen are non-existent; two canonries have been suppressed, and the offices of seneschall, barbitonsor, deacon, and sub-deacon, caterer, butler, or manciple cook, and under-cook, have been suppressed. Where these stipends have gone does not clearly appear, unless they have been divided by or among the dean and chapter. At Peterborough, the original stipend of the dean has to be multiplied by eleven, that of the canons by twenty-six; the grammar boys remain at 2*l.* 13*s.* 4*d.*, as in 1542. Gloucester dean's stipend has to be multiplied by eleven; canons', by twenty-seven; grammar boys, *nil*. Worcester, —dean's income increased elevenfold; canons', thirty-one fold; grammar boys reduced from 2*l.* 13*s.* 4*d.* to 5*s.* 10*d.*! Bristol, — dean's allowance about nine times the original amount; canons', twenty times; grammar boys, *nil*. Carlisle,—dean's stipend increased eleven times; canons', twenty-nine times; grammar boys, *nil*. Chester,—dean's, ten times; canons', twenty-one times; grammar boys from 3*l.* 6*s.* 8*d.* to nothing. Winchester,—dean's income increased to above seven times the statutory amount; canons', to thirty times; grammar boys, *nil*. Durham,—dean's income, eighteen times the original amount; prebendaries' or canons', sixty-eight times; grammar boys, 26*l.*, or eight times the original amount; bedesmen, 20*l.*, or three times the original amount. At Ely the dean's stipend is eleven times, and the canons' more than thirty-one times the original amounts; grammar boys, reduced from twenty-four to seven at 3*l.* 6*s.* 8*d.* as in 1542. These statements, it may be repeated, are carefully deduced from Mr. Whiston's table. If the allowances to the fifty grammar boys of Canterbury had been augmented in the same ratio as the takings of the prebendaries, the school capitation money would amount to 3,860*l.* per annum, besides "commons without stint," of which they are now, and have long been, deprived, contrary to the express provisions of the statute. By the same rule the Rochester Grammar School Endowment would reach 1,913*l.* 6*s.* 8*d.*, exclusive of the "table." Mr. Whiston refers to a time when the dean and chapter of Rochester were paying 1*l.* a year each for only two boys.

Cathedral, and many other ancient endowed schools, have fallen almost completely into disuse, from two principal causes, (1) that the governors have starved them financially, as in the case of most of the cathedral grammar schools; and (2) that the governors have lagged behind the age. Grammar was interpreted to mean the Greek and Latin languages, and the staple instruction long continued to be in the ancient classics; very useful for scholars, but only indifferent auxiliaries in the counting-house, the warehouse, the retail shop, the factory, or the workshop. This practice was not so absurd in former times as it is now, when there is an abundant choice of substitutes for the exclusive study of the dead languages. The consequence was what might have been expected. Those who wanted an education to fit them for business had to seek it elsewhere than in the grammar school, and the mastership of such schools, in many instances, became sinecures, and the schools have been altogether diverted from the intentions of the founders. This seems to have been the case with the Derby School, at the opening of which the Marquis of Hartington officiated so efficiently the other day. In many instances masters charged extra for teaching what was wanted, giving instruction free in what was not wanted. In other instances the schoolhouse was converted into a private boarding establishment. It is not at all surprising that in the original reports of the Commissioners of Inquiry into endowed charities for education, &c., such statements should abound as,—"school discontinued," "no scholars for many years," "master non-resident," "no free scholars taught," "grammar school abolished by trustees," &c. The genius of reform, however, is now happily at work among the grammar schools. The Court of Chancery, upon the representations of the Commissioners, has remedied many of the most glaring abuses, and the new scheme for the management of Robert Aske's foundations at Hoxton and Hatcham is another evidence of the important services that the Endowed School Commissioners are prepared to render in connexion with middle-class schools, their extended usefulness, and reformed management. The liberality of the scheme is creditable alike to the Governors of the Haberdashers' Company, who are the trustees of the charity, in concert with whom the scheme has been drawn, the Endowed Schools Commissioners and the Committee of Council on Education, whose sanction was necessary to its being carried into effect. It is another highly satisfactory outcome from the Endowed Schools Act of 1869, and an excellent augury of good things to come, in connexion with the constantly increasing revenues of many educational endowments.

The charity was founded and endowed by will and codicil of Robert Aske in the historic year 1688. He left 20,000*l.* for the purchase of land within one mile of London, and the erection of an almshouse for twenty poor single gentlemen, preference being given to such as were free of the Haberdashers' Company. Also land, in remainder, for as many poor boys, by preference sons of members free of the Haberdashers' Company, as for 20*l.* a year each could be supplied with "meat, drink, clothing, and schooling." About 32,000*l.* in all were received by the company under Mr. Aske's will. Subsequently, additional sums were bequeathed by others in augmentation of the charity: — Mrs. Mary Turgis, 50*l.*, in 1704; Joseph King, 500*l.*, in 1717; Sir John Smith, 100*l.*, in 1733; and Peter Pope, 500*l.*, in 1807. Property for a hospital or almshouse, and schools to carry out the objects of the trust, were bought at Hoxton, where the hospital and schools were built. Among the conditions were that no pensioner should be admitted under fifty years of age. Pensioners must not follow any business without leave. They must attend chapel morning and evening every Sunday, and on Good Friday and Christ-

* "Cathedral Trusts and their Fulfilment." By the Rev. Robert Whiston, M.A., Fellow of Trinity College, Cambridge, and Head Master of the Cathedral Grammar School, Rochester. Fifth edition. 1851. Olivier, Pall-mall, London.

mas-day, on the four quarterly days of meeting, and on the mornings of every Wednesday and Friday. The old men were allowed 1*l.* per quarter and the "sacrament money," about 7*l.* 4*s.* per annum. They were also allowed a gown every year, but no other clothing. They were lodged and fed in the hospital, and had an allowance of coals. They had a hot dinner every day, except Saturday, when in lieu of dinner they had an allowance of 3*s.* A dinner was afterwards provided on Saturdays. The hospital was not always full, from the small number of single men otherwise eligible for admission. The Company purchased from the trust funds a valuable property at Ashford, in Kent. The rental of the trust property is nearly 9,000*l.* per annum.

At Hoxton the hospital was carried on, and a school successfully conducted, for many years. Some time since the hospital was closed, and the almsmen made out-pensioners, compensation being also paid to the discharged officials, viz., the chaplain and head-master a pension of 120*l.* per annum; the master, a pension of 50*l.*; and the matron, a pension of 20*l.*, during their respective lives, in each case in the event of the Company not offering suitable employment to these officers. The almsmen elected since the 1st of October, 1872, are entitled to such annual pensions, not exceeding 75*l.*, as the governors may determine. They have now fourteen at 75*l.*, two at 70*l.*, and four at 50*l.* per annum each.

The "Haberdashers' Hoxton Schools" provide for 300 boys and 300 girls, and "Aske's Hatcham Schools" for 300 boys and 200 girls; the latter will be the higher class schools of the two. The sole management of the schools is vested in a Board of fifteen members, constituted thus:—Nine members, of whom two shall be women, are appointed by the governors, one by the Lord Mayor and aldermen of London, one by the Common Council, two shall be members of the Hackney division of the School Board for London, and two members of the Greenwich division. The governors' managers are to hold office for seven years, the others for five years, and shall then retire. Religious opinions do not in any way affect the qualification for being a manager. No person is disqualified from being a master not being, or intending to be, in holy orders. By notice in writing to the head-master or head-mistress parents or guardians may withdraw scholars from attending prayer, religious worship, or lessons on religious subjects, such withdrawal not to deprive the scholar of any advantage or emoluments from the school, or the endowment to which such scholar would be otherwise entitled. The weak points in this fair-seeming condition are the formal "notice in writing," and the power of the master or mistress to expel a scholar, subject to their making "a full report of the case in writing to the managers," who may, in turn, by two-thirds of their number, first suspend, and afterwards "wholly and finally dismiss him or her"; he and she having previously signed a declaration in the minute-book that they "will acquiesce in such removal, and will thereupon relinquish all claim to the office and its future emoluments," &c.

In the Haberdashers' Hoxton Schools the head master is to have a salary of 100*l.* a year, and the head mistress of 75*l.*, with a capitation allowance of not more than 30*s.*, or less than 10*s.* per scholar, The entrance fee is not to exceed 5*s.*; the tuition fee is to be not more than 4*l.* a year, or less than 2*l.* Boys are not to remain in the school after they are fifteen, or girls after they are sixteen years of age. Applicants for admission have to pass an examination on the standard of reading easy narrative, and writing text-hand, doing easy sums in the first two rules of arithmetic, and knowing the multiplication table. The course of instruction in both schools includes reading and spelling, writing, arithmetic and elementary mathematics, English grammar, composition and literature, outlines of history, geography—political and physical, natural science, Latin or French, or both, drawing and music; and in the girls' school, household management and needlework. 400*l.* are to be set apart annually for exhibitions, not exceeding 12*l.* a year, tenable at Hoxton Schools. For scholars leaving the school, 600*l.* will be appropriated for exhibitions.

The head-master at Aske's Hatcham Schools is to have a salary of 150*l.*, and the head-mistress of 100*l.* a year, with capitation allowances of not less than 2*l.*, or more than 4*l.* per scholar, either of which, if the schools are nearly full, will bring their incomes up to a handsome amount. The registration fee on application for admission is not to exceed 5*s.*, the entrance fee is not to exceed 1*l.*, or the tuition fee be less than 4*l.*, or more than 8*l.* a year. Scholars are not admitted under the age of eight years. The entrance examination is on a higher standard than at Hoxton. The course of instruction embraces,—the English language and literature, French and German, Latin, arithmetic and mathematics, history and geography, natural science, drawing, music; and, in the girls' school, household management and needlework. Exemptions from fees are to be granted by way of exhibitions, and the managers may assign an annual sum of 1,200*l.* for exhibitions not exceeding 40*l.* a year each in value, tenable at Hatcham, or any other approved school. These are mainly intended for the children or grandchildren of freemen haberdashers. For scholars leaving the school 600*l.* will be assigned for exhibitions. All the exhibitions of different kinds will be divided as equally as possible between boys and girls. The scheme provides for science classes in connexion with the Government Science and Art Department, for the establishment of a pension fund, and the application of residue and surplus funds. At Hoxton the managers engage and dismiss assistant teachers; at Hatcham these powers are vested in the head-master and head-mistress.

Board Schools furnish ample facilities for the education of the children of labourers, artisans, and ordinary mechanics, and for such classes no further provision is needed. There is a large section of the middle class that are now in very much worse case as regards education. They contribute their full quota to the School Board and other rates. The Board Schools are, for reasons that need not be entered into, not available to them, and they have the mortification of knowing that they are contributing towards the maintenance of schools in which a better education is given than they can secure for their own children. The application of the increasing revenues of educational endowments to the establishment of such institutions as "Aske's Hatcham Schools" will prove a great and highly-prized boon to the meritorious class referred to, and seems to be a wise and perfectly legitimate use of the trust funds.

The schools, which are in two separate blocks of buildings, are built upon the crest of a hill, and give admirable relief to the sky-line from almost any direction of approach. They stand in about four acres of ground, which have been laid out and planted with excellent taste by Mr. Phelps, landscape gardener. A very fine view of London and the surrounding country is commanded from the school grounds, the sweep ranging from Shooter's-hill in the east to the Houses of Parliament in the west, taking in the Surrey and Commercial Docks, St. Paul's, and other prominent objects; the South London Gasworks, however, between the middle distance and the foreground, interposing to the annoyance of the gazer. At the foot of the hill on the west side, is Nunhead, and close to its base, on the opposite side, is the rapidly-increasing suburb of Brockley, inhabited by just the class of people, for the most part, that need such schools as are here provided. Unfortunately, although the schools are quite near to these suburbs, there is as yet no road between them, and the schools can only be reached by a long detour. Ere long roads will be made, probably, and the spacious road to the schools from New-cross Gate will speedily be taken up, doubtless on each side, for building purposes.

The school-houses are Elizabethan, and very effective in their elevations, agreeably relieved by gables with wrought-iron finials, and the forms and positions of the windows and other openings. The internal accommodation and arrangements are all that could have been desired for comfort and convenience. The music-room is a curiosity, in fitting which the difficulty of the task has been grappled with, we hope it may be found, with a moderate degree of success. Neither a separate room for each pianoforte nor complete isolation in the same room was practicable. The room contains six closets, that are covered at the top, and separated from each other by a wide centre aisle and 3 ft. spaces. They are in size 6 ft. by 7 ft., and have the upper quarters filled with fluted glass. The general school-rooms, class-rooms, of which there is a very liberal number, lavatories, cloak-rooms, &c., are all good of their kinds, and thoughtfully arranged as regards their relative positions. Covered playgrounds are provided. There is no residence in connexion with the schools, excepting that of the caretaker, who, by the way, might have been allowed a little more elbow-room in his apartments, which are very small.

The schools are from the designs of Mr. W. Snooke, architect, of Duke-street, London Bridge. Messrs. Perry & Sons, of Stepney, have executed the contract. Mr. Gammage has acted as clerk of the works.

The Haberdashers are trustees for a large number of charities in addition to Aske's. These include Somers's, Gale's, Huntlow's, Sir George Barnes's, Johnson's, Culverwell's, Buckland's, Heydon's, Barrett's, Lady Burghley's, Offley's, and thirty-five others, making about fifty in all. One of these charities, at Monmouth, is an important establishment, including large schools, with numerous class-rooms, and a chapel and masters' residences. Mr. Snooke is at present engaged in enlarging the schools. Additional accommodation for the masters is also about to be provided. The buildings are Elizabethan, and entirely of Forest of Dean stone. The area of the main building is 400 ft. by 350 ft.

DWELLINGS OF THE WORKPEOPLE OF SICILY.

The working classes in Sicily are, for the most part, wretchedly housed. Artisans and the better class of servants occupy two or three rooms on the ground floor, or on the *entresol*, which they furnish with some neatness, and hang the walls with a few copper sauce-pans, and a multitude of coloured prints. But if the dwellings of this class show some appearance of comfort and cleanliness, such features are altogether wanting in those of the day labourers or unskilled workmen, whose family is generally crowded into a chamber barely spacious enough for the bed and the loom, and often receiving light and air only through the open doorway.

In the country the houses of this class are, if possible, more miserable than in the towns, and the inmates share them with donkey, pigs, and fowls, when they possess such riches. Hence their hovels are redolent of filth and miasma, and swarm with vermin. Fortunate, nevertheless, are they who enjoy all the year round the shelter even of a roof. In the sparsely populated districts, where no village lies within his reach, the agricultural labourer often inhabits a conical hut of reeds, with no furniture beyond a litter of straw and a few utensils for cooking and drinking. The workmen in the mines also, when these are not accessible from any village, after toiling all day in the bowels of the earth, come to the surface only to pass their nights in holes or caves hollowed in the hill-side, and more like the dens of wild beasts than the habitations of human beings.

As may be supposed, the foul, unventilated hovels which the mass of the working-classes of Sicily inhabit are fearfully detrimental to their health, notwithstanding that they spend their days in the open air. Scrofula and consumption, fever and cholera, when they visit the land, decimate the labouring population, and are attributable mainly to the horrible condition of their dwellings. This applies more particularly to the country towns and villages, but also in a great measure to the abodes of the corresponding classes in the large cities. It is true that Palermo, Messina, Catania, and other large centres of population, have made immense progress of late years in cleanliness and sanitary arrangements. In the capital in particular the drainage of the principal streets is now admirable; so are the municipal regulations for the removal of filth and rubbish. Even in some of the smaller towns, such as Girgenti, which used to be notorious for their filth, great sanitary improvements have been effected, but others of the country towns are still just what they were five-and-twenty years ago. Terranova is an instance. Beyond one paved street which traverses the town, and is kept in decent order, all is abominable filth. Pools of black mud 1 ft. deep render most of the side streets impassable, and the foul odours they emit are pregnant with disease.

The remuneration of labour in Sicily has risen considerably since 1860, when the establishment of the conscription withdrew a large number of young men from productive employment. Skilled workmen, before that date, used to receive 2*s.* a day on the average, now they can earn from 2*s.* 6*d.* to 5*s.*, according to the craft, the average being about 3*s.* Compositors, cabinet-makers, ship-builders and founders, gilders, and other handicraftsmen, reach it. On the railways and other public works, masons

and stonecutters can earn from 3s. to 3s. 6d. a day. In the sulphur mines the pickmen get about 3s. a day, while the boys who bring up the ore to the pit's mouth receive only 9d.

The Sicilian artisan lives on bread and maccaroni, cheese, pulse, vegetables, and fruit. Fish he purchases only when abundant and cheap, but which is not always wholesome during the hot season. In meat he indulges rarely, it being very dear, and almost beyond the reach of a labouring man. The chief wines which form the ordinary beverage of these classes are not unfrequently adulterated in the cities, rarely in the country; but, on the whole, they are not injurious if taken in moderation. The clothing required by a workman in Sicily differs in a great measure from what he would use in England. The climate enables him for many months in the year to dispense with warm clothing, and during the height of summer he is glad to wear the lightest fabrics he can procure.

The ambition of the Sicilian artisan is to appear of a higher rank in the social scale than that to which he really belongs; and with this view he saves his earnings that he may appear with his family on the promenade on *fête* days, as smartly if not as well dressed as his employers. He is nervously jealous of what he considers is his respectability, rejoices in the title of "Don," scorns to carry a parcel, or to appear in public in his working-dress; and, although condemned during the day to dirty work and shabby clothes, he takes care, at least, to go and return from his labour with clean face and hands, and attired as much like a gentleman as his means will allow.

As to the quality of work executed by a Sicilian workman, there is little to be said in commendation. As a rule he does not take pride in his work and put his character into it. His great object is to turn out his work in an attractive form so as to get the quickest and highest return in cash; he cares little for its excellence and durability, or for the reputation he risks, by his indifference on these points.

THE UNDERGROUND TELEGRAPHS OF LONDON.

ON the 8th inst., at the meeting of the Society of Telegraph Engineers, held at the Institution of Civil Engineers, Great George-street, Westminster,—the president, Mr. Latimer Clark, in the chair,—an interesting paper on "Underground Telegraphs; the London Street Work," by Mr. Charles Fleetwood, of the Postal Telegraph Department, was read.

The author stated that from the original five wires used by Cooke & Wheatstone in July, 1837, between Euston and Camden, to test the success of the original five-needle telegraph, the system has gone on increasing latterly with rapid strides, culminating at the present time with 750 different wires entering the central station, and a total mileage of 3,500 miles of gutta-percha covered wire. On the successful issue of the Cooke & Wheatstone telegraph, it was started commercially, and a line of five wires was placed underground in lead pipes between Paddington and Drayton. This line became defective, and in 1841 was replaced by posts and overhead wires. The existing lines erected by Mr. Cooke from this period were, in 1846, on the incorporation of the Electric Telegraph Company, led by wires in iron pipes to the first office in London, 345, Strand. In the following year the system was extended under the streets to their new Central Station at Founder's-court, Lothbury, which office was opened on 1st January, 1848, when the total system of the company at that time reached 1,500 miles of telegraph wire erected and in progress, a mileage less than one-half the present system under the streets of London alone. The wires were formed into cables, and drawn through iron pipes; the wires were of No. 4 gauge. These cables were connected to what were termed testing posts, standing up like a street-post. The wires were connected in these boxes by a mechanical joint, which it was easy to open and disconnect for testing.

At the present time the street work of London consists of about 3,500 miles of No. 7 gauge gutta-percha covered wire, wrapped with tape, and tarred, drawn into cast-iron pipes of 3 in., and in some cases 4 in., diameter. This system connects the central office at St. Martin's-le-Grand with the several provincial railways and the main road lines of telegraphs; it also serves a large number of the metropolitan telegraph offices. After describing the main routes of the pipes through the various districts of London for a length of 110 miles, the author went on to state, that at the New General Post-office the whole of the 740 wires are carried up the interior of the building, and terminate on a test box, where each wire is numbered. Provision has been made on this box for 500 wires from the west, and a corresponding number from the east, a total of 1,000 in all. A 4-in. pipe will hold 120 wires of No. 7 gauge prepared, and a 3-in. pipe 72 wires, but it is not well, unless compelled by circumstances, to draw in those numbers. The pipes are 9 ft. long, and previously to being laid are well cleaned inside by having a heavy chain or mandril drawn to and fro to rub off any superfluous substance left in casting. The socket joints are packed with tarred yarn, and lead run in, as in the case of gas or water-pipe joints.

In marking out the route the footpath is generally chosen, and the pipes are laid under the pavement, it being much more accessible, especially since the asphalt has been introduced. Flush-boxes 2 ft. 6 in. long, 11 in. wide, and 1 ft. deep, are fixed, in some cases 50 yards apart, and in others 100 yards, according to the number of wires required and the nature of the streets. A No. 8 galvanised iron wire is threaded through the pipes from box to box as the pipes are laid, by which the cables are hauled through. All the cables are sent out from the Postal Stores in lengths of 400 yards. On arrival at the place where they are to be used, the cable is coiled in a loop, a short distance from the centre flush-box of the 400 yards length. The ends of the wire are trimmed for about 6 in. The cable is then divided into two, and each portion being twisted is then passed through the loop in the iron leading-in wire in contrary directions, beaten back, and secured. A piece of canvas is then wrapped round and fastened with string. An iron frame with wooden rollers is then fixed in the flush-box. The cable is made to pass over one roller and under the other, and the latter is so arranged that the cable enters the pipe with a clear lead, and without being chafed against its edges. All being now ready for the drawing in, two men stand within the coil cutting the ties, and delivering the cable to a third man over the flush-box, whose duty it is to see that the cable enters the pipe evenly, the foreman standing near, so as to watch the cable entering the pipe, and to signal to the men at the next box when to commence or cease pulling. When the first 50 yards of cable have entered the pipe, which is known by the end appearing at the next box, a piece of tape is tied round the cable; and when this has passed through the pipe, a second piece, and so on till the 200 yards have been drawn through. As the cable comes out of the pipe, it is coiled on the opposite end to that from which it has been drawn; the cable is then turned over by being re-coiled on to the contrary end of the box ready again to enter the pipe. This operation is repeated till the whole 200 yards have been laid. A corresponding operation has to be performed with the remaining 200 yards of the cable, but, of course, in the opposite direction. As soon as a few sections of the cable have been laid, the jointers follow, starting from the Central Station, St. Martin's-le-Grand, and jointing the wires in the vaults under the pavement at the corner of Bath-street, Newgate-street, to the house wires leading from the test-box in the instrument-room, and which pass through a rack numbered to correspond with the terminals on the test-box. Having completed the joints at that spot, one man proceeds to the next joint-box, 400 yards distant, and the other to the test-box, where he commences numbering the wires by putting the current on the lowest number through a galvanometer, and when found by the man in the flush-box, three signals are passed twice each way. The wire is then fitted with a small piece of composite tube, on which a number has been stamped corresponding with the test-box number. Every wire is numbered in this way at the 400 yards boxes, so that at every joint-box the number of any wire is at once known. The men engaged in this work in London have had great experience, and although the whole of their joints will not, perhaps, to use their own phrase, "stand the shadow test" (Thomson's Reflecting Galvanometer), they are generally good. The greatest enemy they have to contend with is dirt, and although full instructions are issued, and every care taken, it is difficult to carry them out thoroughly in the streets of London. There have been several methods proposed for improving the joints in the streets, but as yet they have met with little favour from those engaged in the work. It has been the custom to make a twist joint, and now it has been suggested to insert the ends, after being cleaned, into a piece of slit copper tube, tinned on the inside, of about ¾ in. in length, after which it is soldered. This makes a good joint, and it is believed will prove beneficial, as it does away with the sharp points that must be left when a twist is made. A plan for insulating joints is on trial at several places. The two wires are passed through the wooden bottom of a short tin tube, the twist made and soldered, and then the wires pulled back into the tube, and the latter filled with melted paraffin wax. Such a system of mechanical jointing of course could not be used where it would be necessary to draw the joints through a pipe.

On the subject of maintenance, the author stated that within the past five years nearly the whole of the underground system in London has been re-laid, the number of wires having been found insufficient to meet the increased metropolitan traffic, as well as the additional wires rendered necessary on the railways and road lines for the rapidly-developing provincial business. This work has been effected with comparatively little or no interruption of the working circuits, and by far less than is experienced from renewals on railways or road lines.

The underground wires are tested periodically from the Central Station by means of a Wheatstone bridge and Thomson's galvanometer. To prevent stopping the circuit, two spare wires (where available) are used between St. Martin's and the point to which the tests are to be taken: one joined to an instrument for a speaking circuit, and the second as a substitute for the working wire during the time it is being tested. . . . . During the latter portion of the time the old building in Telegraph-street was in use, it frequently happened that a wire was worked out of a mass where there was nothing to identify it by. In that case, rather than prick the wires, a wire-finder, such as mentioned by Mr. Culley in his Handbook of Practical Telegraphy, was used, but it was found to be a difficult task, owing to the currents in the working wires affecting the needle. Eventually it struck the author that if he used a quantity current and the horizontal galvanometer, generally used for the Wheatstone Bridge, he should succeed. It proved to be correct; the quantity current only moving the needle. This plan has since been used in the street and answers admirably. In conclusion, the author expressed a hope that we might see the underground system extended far beyond the outskirts of London, believing that if the same care and attention were given to it as is given to submarine cables it would prove to be a great success.

DWELLINGS FOR THE POOR.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL general meeting of this Institute was held on Monday evening last, for the purpose of receiving the report of the Committee appointed at the annual general meeting on the 4th of May, 1874, "to consider and report to a special general meeting as to the financial condition of the Institute and the best means of increasing its efficiency." The report having been read, it was resolved:—"That the report of the Special Committee appointed on the 4th of May, 1874, be received, printed, and circulated among the members of the Institute, and that this special general meeting be adjourned until Monday, the 10th of January [1876], for the purpose of considering the report."

Mr. H. A. Darbishire then read a paper "On Dwellings for the Poor." The author, in introducing the subject of his paper, observed that the provision of suitable dwellings for the poor was a more difficult task than was ordinarily supposed. In addition to financial questions, there was the fact that that portion of the community generically described as "the working-classes" was subdivided into many sections, each representing a different rank in the scale of comfort and accommodation required. Their requirements were to a great extent determined by the wages they received. Experiments by which it had been attempted to promote friendly intercourse between these different ranks, by providing each with its own accommodation under the same roof, had usually failed, partly owing to the strong class prejudices, and partly because the humblest and neediest often preferred to hide their poverty in obscure courts and alleys to exposing it in an open thoroughfare. The claims of the higher sections had at first been

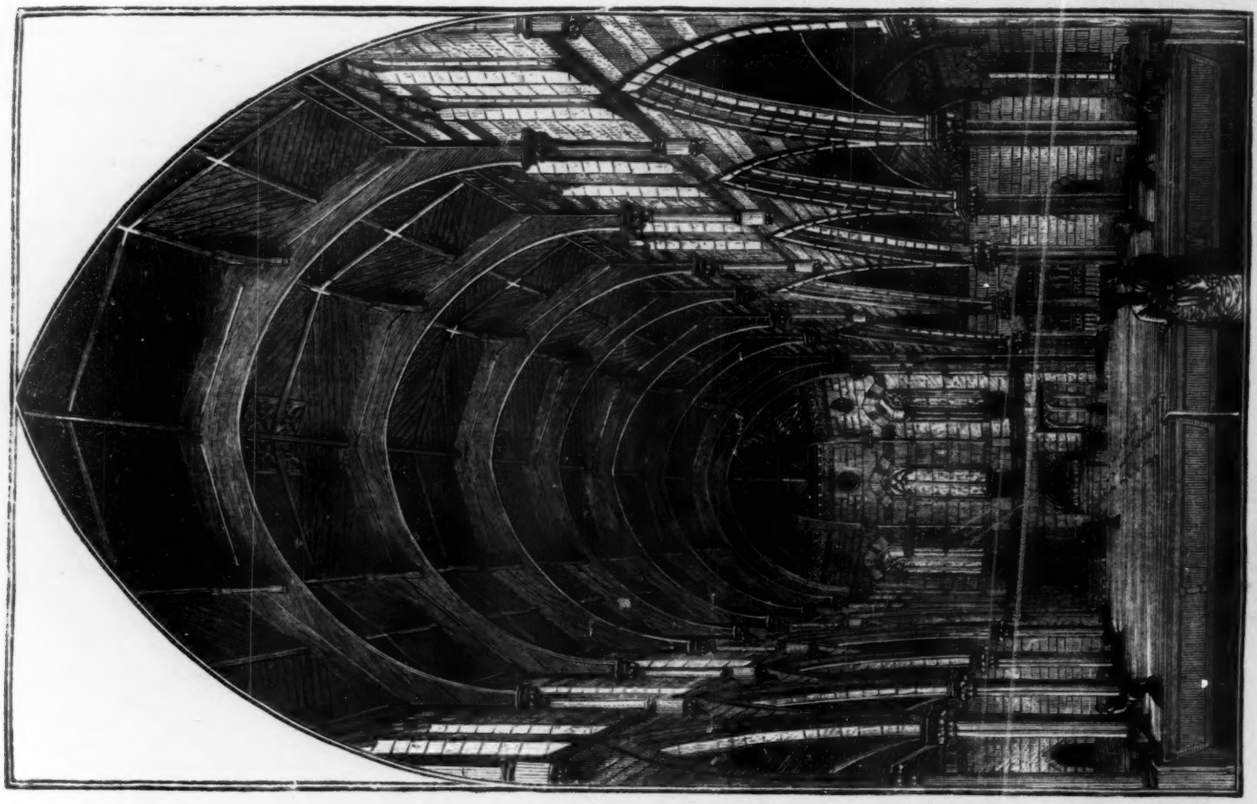
brought forward with greater prominence, and therefore had been more generally recognised; but latterly buildings had been erected for the purpose of meeting the wants of the lowest classes, represented by artisans and others whose wages average 25s. per week. Sanitary appliances of an elaborate nature were avoided, but light, fresh air, and a liberal supply of water, were held forth as the principal attractions of the model dwellings. The plan of the first erected was very simple. The rooms were arranged on either side of a central corridor lighted and ventilated at each end by windows and an open staircase. The water-supply was placed at the ends of this corridor, while washhouses and baths were on the topmost story. After a time this arrangement was modified. The position of the staircase was made more central. The water-services were provided in sculleries at each end of the staircase, while the bath-rooms occupied a sort of mezzanine floor. By degrees the wasteful habits of the tenants, which at first presented a difficulty, became influenced by their improved position; and an increased acquaintance with the ways of decent living made them more economical. The buildings most recently erected on an improved plan suggested by the experience of former trials are in Grosvenor-road, Pimlico. They are arranged in blocks of four stories in height, each story containing ten living and bed rooms. The blocks are placed together for the purpose of composing dwellings of various sizes without rendering any structural alteration necessary. Uniformity in construction and distribution of the walls is of importance, since it not only effects a saving of materials and labour, and therefore of time and money, but it secures rooms of regular shape, which is of great advantage to the tenants. In referring to the arrangements for ventilation, Mr. Darbishire observed that "the working man hates fresh air at home; the elements seem to affect him but little while he is at work and his blood is warm with exercise; but when his work is over, and rest allows his body to cool, he feels chilly and uncomfortable; he complains of draughts and too much ventilation, and attributing much of his uneasiness to the discomfort of his dwelling, he stops up every chink and crevice by which he thinks a breath of air might enter, and hugs himself at last in the clouds of smoke which his sulky fire pours forth in consequence. Experience has shown how vain it is to attempt any disguised device to save him from suffocation; however clever it may be, he finds it out and renders it useless; and unless the air, which *must* find its way in when doors and windows are opened from sheer necessity, is as free from stagnation and impurity as possible, the interior of the very best-arranged dwellings must be unhealthy and offensive." After describing in detail the appliances for lighting, ventilating, cooking, &c., adopted in workmen's habitations, Mr. Darbishire proceeded to enumerate the conditions which should regulate their arrangement in regard to (1) site, (2) drainage, (3) boundary fences, and (4) open areas and playgrounds. He then summed up the subject of his paper by submitting the following conclusions, which had been derived from his experience in dealing with the question:—"That before the working-class, as a whole, can be suitably provided with dwellings, it should be divided as far as possible into sections. That the standard of wages affects this division more accurately than any other, and affords the best means of determining the accommodation which is most consistent with the habits and mode of living of each section. That each section should have its dwellings arranged with strict reference to its requirements, so that they may not be too large for convenience, nor too confined for the purposes of decency and health. That the size, shape, and general construction of the dwellings affect their cost and adaptability to the site upon which they are built, their sanitary condition, and the resources of the tenants. That self-contained dwellings more than two stories in height are undesirable as residences for every section of the working-class, and the privacy which is put forward as their chief recommendation is proved by experience to be more apparent than real. That the rents of the dwellings should be proportioned to the wages of the section for which they are provided, and that no more than a fairly-remunerative profit should be expected from them, so that the tenants may obtain the greatest amount of benefit in return for their rent. That the evils of underletting are most serious, and considerably exceed the advantages derived from any mere commercial success which the buildings are able to yield by its aid. Lastly, that in calculating the cost of the dwellings, and the profit to be derived from them, their site and extraneous works in connexion with it should form a separate portion of the estimate, as being subject to variations from which the buildings themselves are exempt."

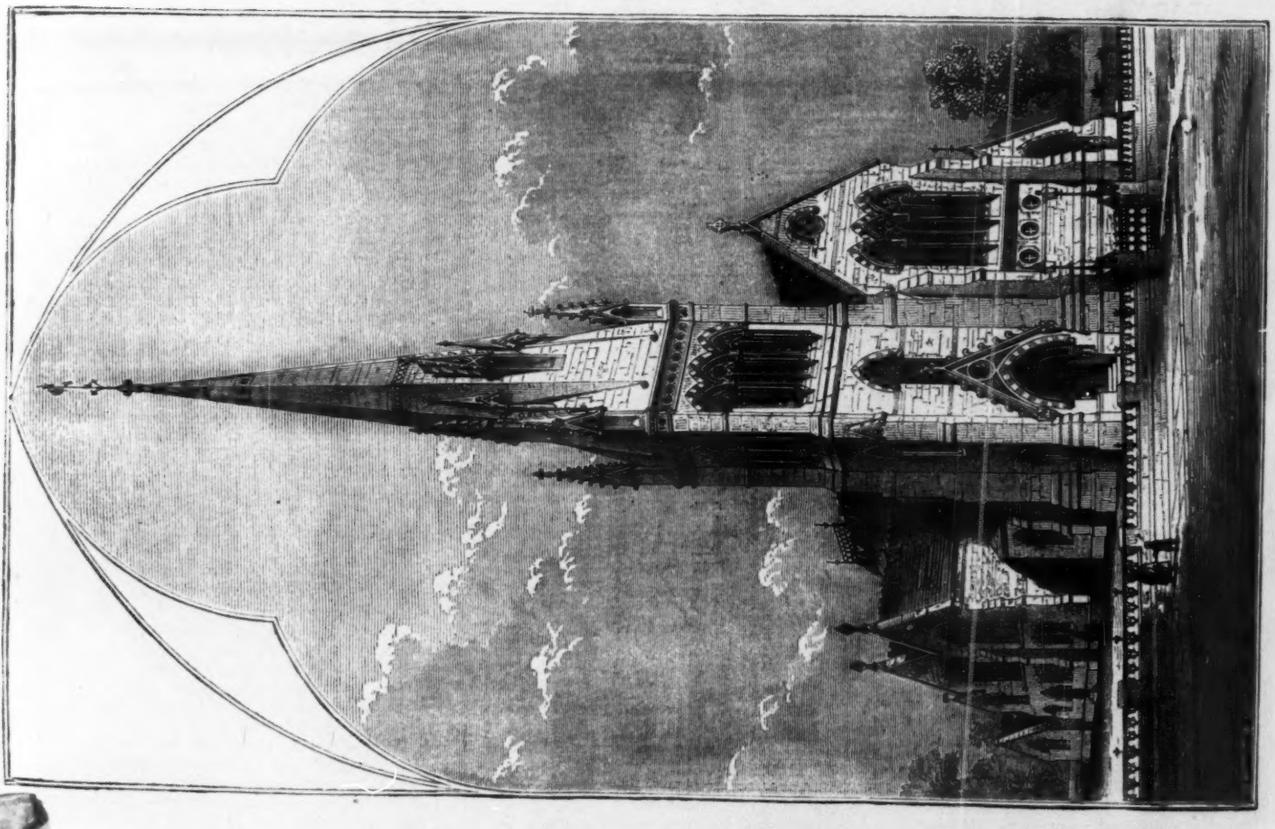
Mr. C. F. Hayward followed with a short paper on the same subject. He remarked that the story he had to tell was too well known, and too sad to be new. To think that we were now discussing how to meet one of the first necessities of life, and had got no further in our civilisation than to recognise the fact that thousands of honest men and women, and tens of thousands of little children, were living in places to which a clean dog-kennel was to be preferred! The few facts which he had to lay before the meeting were with reference to a neighbourhood with which he was officially connected as district surveyor, namely, St. Giles's. The overcrowding in this locality might be said to have been somewhat increased of late years; firstly, by the operation of that part of the Metropolitan Buildings Act which related to dangerous structures; secondly, by the clearance of the underground dwellings of the district; thirdly, by the operation of the Act of 1868, known as "Torrens's Act"; and fourthly, by the demolition of property, necessitated by the carrying out of street improvements, and by the erection of warehouses and other buildings. All these causes had combined to greatly reduce the number of the dwellings of the poor, no other dwellings having been substituted. It had been said that the poor thus displaced had migrated to other parishes, but this was extremely doubtful. From the year 1871 to the present time, thirty houses, containing 192 rooms, had been demolished in the district on account of their dangerous condition, displacing as many as 500 people. In 1872, the underground dwellings of the district were visited, and about a thousand persons ejected. Nearly as many more were disturbed by the operation of Mr. Torrens's Act, the houses being for the most part demolished, and nearly all the sites remained vacant at the present time. The number of persons displaced during the same period for the erection of business or manufacturing premises, and the carrying out of street improvements, was at least two thousand, making a total of nearly 5,000, or 1,000 per year out of a total population in the district of 53,000. The total number of dwellings destroyed was 207, and of rooms 1,434 (including the underground apartments no longer allowed to be inhabited). During the same period, in the adjoining parishes of St. Martin's and St. Anne's, there have been 600 people unhoused. Mr. Hayward here expressed his great regret at the recent death of Dr. Ross, late medical officer of health for St. Giles's, who was fully conversant with the subject of dwellings for the poor, having made it a study for many years. Mr. Hayward said he had intended, when he promised to supplement Mr. Darbishire's paper with some remarks on the matter, to have brought Dr. Ross with him. Having paid a tribute to the *Builder* as having been one of the pioneers in the movement for providing better dwellings for the poor, and as having done much, not only by its articles, but by means of woodcuts, to direct public attention to the wretched manner in which masses of the poor are housed, Mr. Hayward proceeded to quote from a report by the late Dr. Ross on the condition of the poor of St. Giles's, which showed that while the average death-rate over the entire metropolis was twenty-one per thousand, the rate in the southern part of St. Giles's was twelve per thousand more, or thirty-three per thousand. This was not the result of epidemics, but simply the effect of overcrowding. Mr. Hayward then went on to say that the provison of dwellings for the poor,—the really poor, the very poor,—was much more pressing than the provision of dwellings for artisans. Artisans, who seemed to be able to co-operate for the building of cotton-mills, and who frequently exercised their power of combination for less laudable purposes, could easily combine together for building their own dwellings, and thus show their independence of philanthropic or semi-philanthropic efforts for providing them with better dwellings. As a remedy for the deplorable state of things which existed with regard to the dwellings of the very poor, we must not look to construction alone,—that might be, and often had been, far in advance of the requirements of the case,—but we must look to the improved education (using the word in its broadest sense) of the masses. In providing dwellings for the very poor, the buildings must not be too good, although always capable of improvement. It was necessary to strongly insist on this, for the generous efforts which had hitherto been made had generally resulted in the production of buildings which were as much beyond the means of the really poor as an abode in Belgravia. The designer of buildings for the very poor would have to steel his feelings to the minimum of accommodation required. The dwellings should be airy, and the openings in outer passages need not be glazed. Separate storesheds should be provided wherever possible for the storage of baskets, boxes, and stock-in-trade of costermongers, &c., who should not be allowed to store their goods on the landings or in the passages of their dwellings. The rooms should not be too large, as the very poor had not much furniture. Watercloset fittings, &c., should be of the simplest and strongest kind. Mr. Hayward concluded by explaining a plan which he had prepared for a dwelling suited to the "low standard of habitability" of the poorest classes of the metropolis, remarking that if we commenced with a low standard of buildings, we might hope to improve them as their tenants began to know how to use them. By proceeding on this moderate scale of requirements the well-meant but disorganised efforts of kind-hearted millionaires and noblemen would be superseded, and a return of at least 5 per cent. per annum would be secured.

In the discussion which followed,

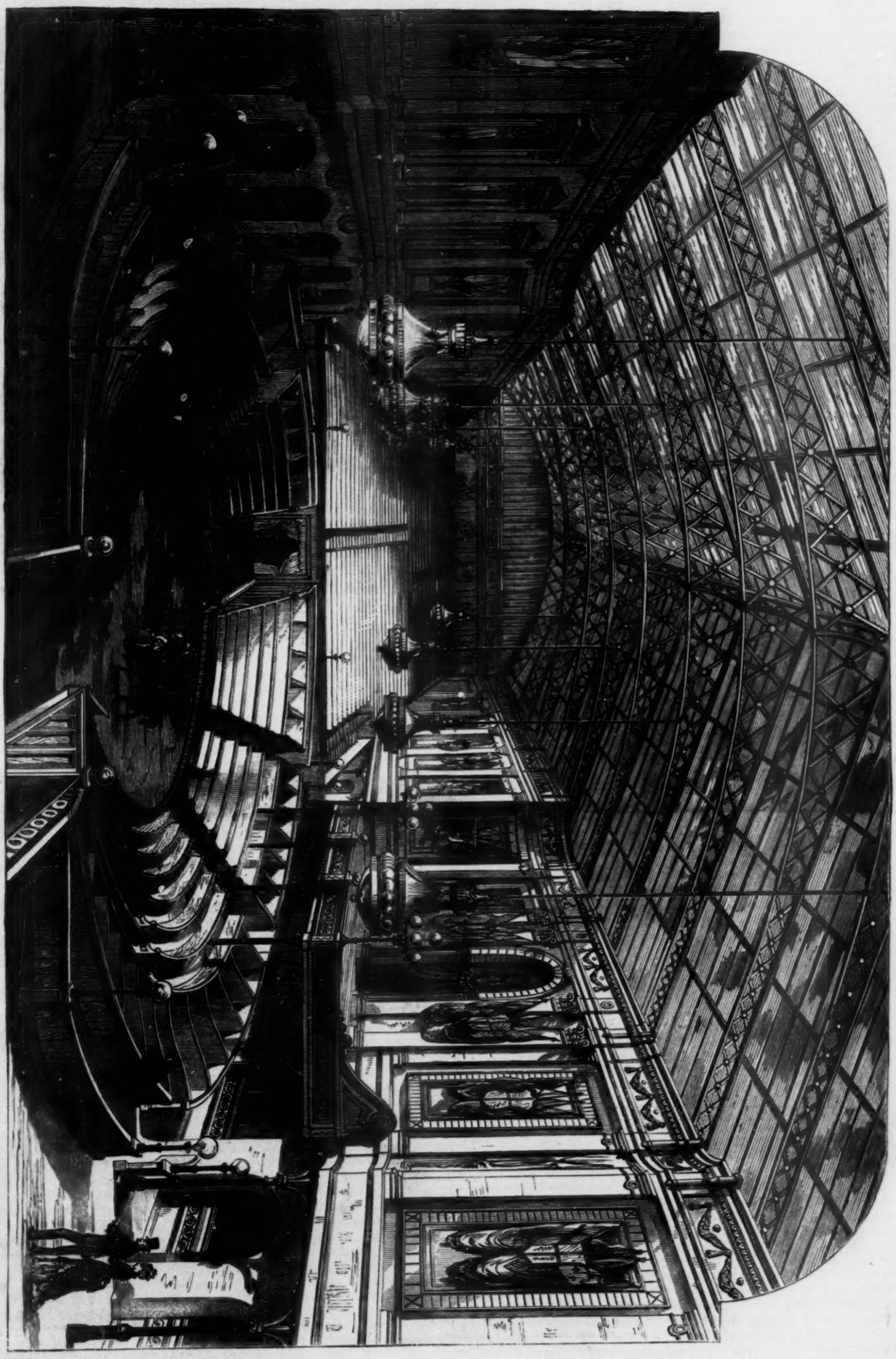
Mr. Gatliff, secretary to the Metropolitan Association for Improving the Dwellings of the Industrious Classes, said that the society he represented had had thirty years' experience in providing improved dwellings for the poor. During that period they had provided accommodation for 1,060 families, upwards of 800 families being accommodated in buildings five and six stories in height, and 230 in cottages or small dwellings, 164 of the latter being in the country, and seventy or eighty in Spitalfields. The cost of the large buildings varied from 42*l.* to 54*l.* per room, some of them having been erected twenty-five years ago, when building was less expensive than at present. The cost of the cottages averaged about 34*l.* per room. The rate of mortality in the buildings owned by the Association averaged only 14 per 1,000 over a period of eight years. The percentage paid by the Association was 5 per cent., and therefore dwellings of this class were a thoroughly safe investment. Last year, out of a rent-roll of 12,257*l.*, 12,101*l.* were received, leaving a deficiency of only 156*l.* for temporary vacancies owing to removals and repairs. The Association had generally selected plots of ground measuring about 200 ft. by 150 ft., and had built blocks of dwellings on three sides of this space, leaving the fourth side and the central space open as a recreation ground.

Mr. Charles Barry, in moving a vote of thanks to Mr. Darbishire, said he agreed with that gentleman in recommending that provision should be made in separate buildings for the different sections of the working classes, amongst whom there was as much class-feeling as existed amongst the upper classes. It would be futile to attempt to induce a mason or bricklayer to live in the same passage or on the same landing as that inhabited by a bricklayer's labourer. In one respect Mr. Darbishire's paper was disappointing; it had not been devoted to the discussion of what might be called the most important question of the day, namely, that of providing, on a commercial basis, healthy dwellings for the poorer sections of the working classes. If such dwellings could not be provided on commercial principles, then the recently-passed Artisans' Dwellings Act would remain a dead letter. But he did not think the problem was impossible of solution. It might be reasonably expected that far better and more suitable dwellings for the poor could be provided at a sufficiently remunerative interest to induce people to invest their money in such dwellings. He did not think any reproach need attach to the attempt to mingle philanthropic with commercial principles, so long as the latter did not tend to anything like usury. But what had been done by these agencies so far? The able report drawn up by the Superintending Architect of the Metropolitan Board of Works (Mr. Vulliamy), in conjunction with the Engineer to the Board (Sir Joseph Bazalgette), stated that "there had been twenty-eight associations of individuals who, from motives of philanthropy or commercial speculation, had, up to the present time, devoted





CONGREGATIONAL CHURCH, ENFIELD.—Messrs. Tarring & Son, Architects.



THE NEW CIRCUS FOR PARIS: PLACE DU CHÂTEAU D'EAU.—M. G. GRIBAINE, ARCHITECT.

CONGREGATIONAL CHURCH, ENFIELD.—MESSRS. TARRING & SON, ARCHITECTS.

themselves to housing 32,435, in all, of the artisan working class." But in a metropolis with a population of 4,000,000, this was solving only a very small portion indeed of the problem, and it was quite certain that if we were to depend alone upon philanthropic or commercial efforts on the part of individuals or associations, we should not be able to cope with the continually-growing evil of over-crowding. He quite believed that it was possible to provide the really labouring poor, earning from 15s. to 25s. per week, with decent dwellings, which, while within the means of the tenants, would yield a good return commercially. He was supported in this opinion by the statistics of six blocks of buildings built by Mr. Freake, and which paid 6 or 7 per cent. Each block was three floors high, and contained forty-two rooms, the cost per block, twenty years ago, being 1,500*l*. The cubical contents of each block were 62,000 ft., which worked out at a cost of 5·85d. per foot, or about 35*l*. 10s. per room. Mr. Freake charged 5s. 6d. for a three-roomed tenement, and 4s. 6d. for two rooms, and allowed no underletting to lodgers, this rule also being observed by the Improved Industrial Dwellings Company, of which Sir Sydney Waterlow is chairman.

Mr. Vulliamy, who was invited by the chairman to speak, said he had nothing to add to what was contained in the report alluded to by Mr. Barry. He was, in fact, rather in the position of a learner than in that of a teacher. He had had comparatively little experience of the subject in the past, although he had no doubt that for many years to come he should have to devote a great deal of time to it under the operation of Mr. Cross's Act.

Professor Kerr expressed a hope that the discussion would be adjourned, for want of time prevented justice being done to a subject of such vast importance to the profession. Certainly architects ought to be able to solve the problem of housing the poor on remunerative principles.

A Member said there ought to be no difficulty in housing the poor on remunerative principles for he found he could buy weekly property which would pay him 12 per cent. By buying up existing property, and improving it by the addition of extra cooking-ranges, &c., 8 or 9 per cent. would be secured.

Mr. Horace Jones said his experience, after going into the matter very closely, was, that the average return on weekly property was only a fraction over 4 per cent. He agreed with Mr. Hayward in deprecating too great an expenditure on accessories; for instance, there was no need to provide a separate water-closet for each tenement. Many of the blocks of improved dwellings which had been put up were too costly to come within the means of the very poor, but their costliness was due to the provision of accommodation which professional men who lived in such places as the Temple had to dispense with. What was needed was to provide light, airy rooms, soundly but plainly built, with the minimum of extraneous accommodation.

Mr. Edward Hall said he believed the solution of the problem of improving the dwellings of the poor of London involved several collateral questions, of which a comprehensive scheme of street improvement was perhaps the most important.

Sir G. G. Scott, in putting the vote of thanks to Mr. Darbishire (with whose name was coupled that of Mr. Hayward), said he did not see how the suggestion of Professor Kerr could be complied with this session, as every evening was filled up; the subject might, however, profitably be taken up again next session. The great work of housing the poor of London never could be carried out on a scale commensurate to the health of the population by philanthropic efforts only. It could only be carried out, as Mr. Barry had suggested, by tapping that enormous fund of wealth whose owners could not afford to give, but who could afford to lend, especially if some guarantee could be given of a moderate rate of interest. Were there no potent bodies who would guarantee a certain minimum rate of interest on such laudable enterprises? He thought the Corporation of London and the Metropolitan Board of Works, and even the Government itself, might safely give such guarantees. If they would do so, a great impetus would be given to the provision, on a commercial basis, of healthy dwellings for the very poorest.

The vote of thanks having been carried, Mr. Darbishire briefly replied.

The next meeting of the Institute will be held on Monday, January 3, 1876, when Mr. R. Reynolds Rowe will read a paper on "The Lantern of Ely Cathedral."

CONGREGATIONAL CHURCH, CHASE-SIDE, ENFIELD.

THE building known as Christ Church, of which we give exterior and interior views, was opened in November last. The plan is cruciform fronting the east, consisting of nave, aisles, and double transepts, with an apse at end of the nave, three vestries, and organ-chamber, and tower and spire at the south-east angle rising to a height of 160 ft.

The internal dimensions are as follow, viz.: nave, including apse, 108 ft. long by 23 ft. 10 in. wide, aisles 41 ft. 3 in. long by 10 ft. 7 in. wide, transepts 38 ft. 6 in. broad by 11 ft. deep.

The apse end is enriched with a carved and panelled reredos, including a sculptured panel in high relief of "The Last Supper." The capitals of columns, corbels, &c., are carved throughout with naturalesque foliage, and in the spandrels, formed by transept arches, are four panels carved with emblematical representations of the four evangelists.

The nave is covered with a timber roof, supported by principal rafters with carved ribs, and boarded between the purlins and intermediate principals; the transepts and aisle roofs are ceiled, but are divided into panels by the principals and purlins. The building is constructed of brick, faced outside with Kentish rag stone, and Bath stone dressings throughout, and inside with Bath stone ashlar, relieved with blue Bath stone bands. There are two entrances at front and two at back. There is accommodation for about 800 adults on the ground floor. There are no galleries.

The building has been erected by Messrs. Cooke & Green, builders, of Blackfriars, Messrs. J. Tarring & Son being the architects. The carving was executed by Mr. Sansom, the warming by Mr. Grundy, and the lighting by Mr. Hoydon. Mr. Jarvis was the clerk of works.

THE CIRCUS OF THE CHATEAU D'EAU, PARIS.

AN enormous new circus has been provided for Paris in a very brief space of time, and has been decorated and lighted by English contractors, Messrs. Defries, with the help of English workmen alone. Many of our readers will recollect the immense block of buildings known as the *Magasins Réunis*, in the Place du Château d'Eau. The *Magasins Réunis* were built some years ago by a company, which issued bonds redeemable in fifty years, for the purpose of co-operative trading; but the scheme not proving successful, the lease eventually fell into the hands of Baron Erlanger. A lease has been taken for twenty years of the courtyard and façade of this pile by Mr. Myers, and within the courtyard the circus has been formed. M. Gridaine, architect, of Paris, by whom the structure has been designed, has enabled us to give a view of the interior, and informs us that the circus will contain 4,000 sittings, besides considerable standing-room in the promenades, and that he is arranging to add to this a large "*balcon*" facing the orchestra, and some private boxes. He had engaged that the circus should be completed, with the exception of the upholstery, with which he had nothing to do, in eighty days, and this has been done within the time. Besides the circus, there is a large saloon about 250 ft. long, lined with looking-glasses and red velvet hangings, with girandoles and fountains. There is also an American Bar, about 110 ft. long, in the front, next the Place du Château d'Eau, handsomely decorated, the ceilings adorned with sculpture and artistic paintings. The stables are under the rising seats of the circus, and afford accommodation for eighty horses, besides elephants, camels, and lions, with a tunnel to admit of a carriage driving from under the seats without being seen by the audience. Dressing-rooms, property-rooms, and so on, are provided in the basement. The circus, entirely constructed of iron and masonry, is said to contain literally nothing to burn but the *fauteuils* and the actual seats of the *gradins*, supported on iron. The court in which the circus is formed having a glazed iron roof, the architect has painted the whole of it, and formed beneath it a fine network of galvanised iron wire to prevent the possibility of accident from the fall of broken glass. We may add that the circus is completely isolated from the rest of the building by an enclosure of iron, and will cost 32,000*l*. The rent paid for the premises, on a lease for twenty years, as we have already mentioned, is 2,560*l*. per annum.

PARIS HOUSES.*

I PROPOSE to describe the construction of a first-class house in flats, erected in Paris, with the best modern appliances, which have come under my notice, or have been practically tested by myself. The house in question is, however, a mere fancy picture, sketched at different times, and from several examples. I will suppose that a well-to-do shopkeeper, who has been carrying on business on the boulevart, is seized, say about the year of promise 1867, with the idea of buying the house in which he has lived for several years, and the land upon which it is built. He might, of course, have been expropriated, and then he would have bought land elsewhere, or made special arrangements with the municipality; but to Englishmen the practice of expropriation must appear wantonly frightful, and so it is better not to refer to it. He intends not only to build a new shop for himself, in conformity with the tastes and fashion of new Paris, but he knows, from the experience of his neighbours, that the residences he can build over it will not only refund the interest of the money he will lay out in building, but also the annual rent of his shop. He employs necessarily an architect; the plans are ready and approved; he has obtained his *alignement*,—and to get one's line of frontage in a Parisian street is a thing quite as serious as getting married or buried,—the contractors have signed their agreements, and the principal one, the *maître-maçon*, is ordered to begin. The old house is pulled down, the site is cleared, and the master-companion marks out the trenches to receive the foundations of the new basement-walls; but below these are two large cubes of earth to be excavated for the construction of two cesspools required to drain two separate sets of water-closets, one set for the large residences, and one for the servants and a few small residences. A cesspool in Paris must be almost immediately under the water-closets it serves. The drain-pipe must descend vertically into it, and continue vertically to a certain height above the ridge of the roof. A junction-pipe, connected with the water-closet apparatus, enters this main a little below the level of each floor, and in juxta-position to this main is placed another pipe, which ascends vertically from the cesspool to above the ridge of the roof, the latter being used exclusively for ventilation. Both these pipes are attached to a strong wall, often the party-wall, with hoop iron, and completely enveloped in cement. The walls, bottoms, and vaults of these cesspools must, according to law, be built of *meulière*,† a reddish petrifaction, full of cavities, and very hard. It is found near Paris, and is little if at all known in England; and it affords an excellent surface to receive the coat of cement with which the walls internally of all cesspools must be covered, their internal angles being rounded. From the vault of each cesspool a communication must be formed with the courtyard, or at least some open area, and the top of this shaft must be covered with a stone slab, fitted into a stone frame. This slab is hermetically sealed, and only opened when the cesspool is full, and then it cannot be refixed until the interior has been officially inspected. These cesspools are so built that the top of their vaults is on a level with the floor of the cellars or basement story, which is perhaps extravagant. Sometimes the cesspools are constructed in the basement story itself alongside and not under the wine and coal cellars of the several tenants. While they have been building a gang of men have been occupied at another corner of the site. They are preparing *béton*, which learned professors tell is of Roman origin, and which, I venture to say, is less easily adulterated than the English concrete. In the corner alluded to a platform has been made of planks, on one side of which is a heap of pebbles and chips from the stone-cutters' yard, on the other a heap of sand, and under a shed close by a large number of sacks containing hydraulic lime, and some mortar is already prepared for use. Wheelbarrows are scattered about, and the bottoms of some of these are made with iron bars to hold the pebbles,—for it is necessary that these be thoroughly washed,—and consequently when placed in the wheelbarrows the water escapes from them through the iron bars. My *béton* shall be, perhaps, extravagantly good; and, as is well known, *béton* is a mixture of hydraulic mortar

* See p. 1100, *ante*.

† Its composition is quartz, carbonate of lime, aluminum, and oxide of iron.

with pebbles or stone chips, which must be hard, rough, about the size of an egg, and similar to those used to macadamise a road. The mortar and pebbles are sometimes very well mixed by a machine, but it is better done by hand; and for this purpose five wheelbarrows are required,—three with bottoms of iron bars, and two of ordinary make. The three first are filled with clean pebbles or chips, and the two others with hydraulic mortar. One barrow full of pebbles is wheeled to the wooden platform, and its contents are spread out over the entire surface; above these is uniformly spread a barrow of mortar. Then a second barrow of stones is deposited in the same manner, and a second barrow of mortar, which is then covered with a third barrow of stones. The heap is then turned over with spades; and with a three-pronged fork or hook the substance is dragged backwards and forwards by the workmen. The pudding thus made is considered to be sufficiently stirred when the pebbles are entirely enveloped in mortar. Before throwing the *béton* into the trenches a layer of gravelly sand has been spread over their bottom surface, which will prevent the mortar from becoming deteriorated with the soil beneath before it is properly set. There is no absolute necessity to ram *béton*, if only it be carefully laid. I have ordered it to be spread in horizontal beds of from 8 in. to 10 in. thick, and I shall begin the walls upon it almost immediately. No *béton* has been put under the cesspools, not because the soil upon which they are built is exceptionally firm, but because the principal walls of the building are not carried upon those of the cesspools. Under the principal walls there is a height of 2 ft. 6 in. of *béton*, and when they have reached a few feet in elevation I shall spread over the whole area of the building about 10 in. thickness of *béton*, the top surface of which shall be level with the top of the *béton* under the walls. Thus I can support the 9-in. brick partitions required to form the numerous coal and wine cellars which occupy the whole of the basement, for in Paris an underground story is seldom if ever inhabited. Double retaining-walls to protect a basement from damp, which are common in England, are seldom used, and the walls which touch against the earth are built of rough, hard stone, 2 ft. at least thick, coated externally with cement. These walls are now within a few inches of the street level; brick arches are being turned over the cellars between the partition walls, their flanks are filled up with more *béton*, and a general even surface is obtained about a few inches below the finished level of the ground story. A horrible odour pervades the works. Around the cauldron with a blazing fire under it, two men are dancing. One stops to throw into it a lump of bitumen, then a little gritty sand, and the other stirs up the contents. Suddenly one rushes off with a saucepan full of the boiling liquid and spreads it cautiously over a part of one of the walls; then a bricklayer lays bricks hurriedly upon this same spot, blasphemes and sucks his fingers; more asphalt is brought, always in a boiling state, and eventually two courses of hard bricks are laid over the principal walls. Ultimately a coat of asphalt about ½ in. thick will be spread over the whole area of the ground-floor, under stone, tiling, or parquetry, as the case may be. Above this level there are seven stories, including the roof to construct, and the existence of a shop on the ground-floor necessitates as much open space as possible. The weight of the internal walls must be concentrated upon a succession of supporting points or piers, which must be built in solid blocks of hard limestone. The difficulty of making a house-front appear logically constructive when a shop-window forms its ground story is lessened in Paris by the fact that each house has an entrance for the inhabitants of the residences over. This entrance (*porte-cochère*) is necessarily of stone and wide enough for carriages; and the lateral walls of it are of stone, although for the rest of the ground-floor front iron columns are placed between the stone piers. These columns are generally coupled in the thickness of the wall; so are the lintels they support, which are of rolled iron. These joists, about 10 in. deep, are secured together with wrought-iron collars about 4 ft. apart, and planks having been temporarily placed under them they are filled with bits of broken brick, pottery, lumps of old partitions, &c., and the whole "run" in fresh plaster. A solid lintel of iron and plaster concrete is thus formed about 18 in. thick and 12 in. deep, and say from 6 ft. to 8 ft. long. Sometimes, in very superior work, these lintels are filled up with new bricks carefully laid in cement; but where there is no risk of damp, plaster is as good, and certainly cheaper. Similar lintels are being placed over all the internal piers, and upon them the ends of the rolled iron joists forming the floor of the first story will be laid. These lintels also receive the weight of the partitions of the different stories over. The joists can be obtained of all scantlings at St. Etienne, near Lyons, and elsewhere up to 12 in. in depth, with flanges of comparative thickness and width. They are slightly curved, so that when enveloped in plaster and weighted they become almost straight. The completed flooring, including the plaster ceiling and the parquetry, will certainly not exceed 12 in. in thickness. The rolled joists, about 6 in. deep, are placed 30 in. apart; and at right angles to them are fixed wrought-iron bars of from ¾ in. to 1 in. square, which are bent at the ends so as to clip the upper flange of the joist, and permit the bottom of the bar to be level with the lower flange of the joist. These bars are placed about 3 ft. apart, and as much as possible in a straight line; for, in this manner, they act as a strut. A blow with the hammer suffices to fix them, and this done the joists are necessarily stiffened. Upon these bars, in lines parallel with the joists and of the same length, light iron rods are laid. All this iron has received two coats of paint,—of iron minium (*minium de fer*),—and the skeleton of the floor is now ready to be *hourdé plein en plâtre*. This is a simple proceeding: a temporary ceiling of planks is erected under the skeleton. Upon this planking are thrown bits of old plaster, brick, and hard rubbish of all kinds until the whole space between the joists is filled up almost to the level of their top flanges. Liquid plaster is then run into and over the whole mass of iron and ballast; and the next morning it is possible to jump upon the floor and order the removal of the planking beneath it. But that useful substance plaster has a tendency to swell, and if a small cavity be not left between the solid plaster floor and the stone wall the latter will be pushed outwards. It is usual to tie in the external and party walls with iron bands looped at different points over circular iron rods (*ancres*) inserted vertically in the centre of a solid block of stone, and run in plaster. These bands are hooped together midway between the rods. This is the Parisian practice, and the chains laid on a level with each floor serve in stone construction the purpose of hoop-iron bond in brickwork. But in spite of the precaution usually taken to paint them, the insertion of such chains into soft calcareous stone, and indeed the insertion of any iron into limestone, is a hazardous proceeding, more particularly when plaster is used. Damp swells the plaster, rusts the iron, which then increases in bulk and cracks the stone; or it is ultimately reduced to carbonate of iron. For my part, I think it quite possible to build a solid stone wall without iron chains or cramps, and only use them in deference to the vested interests of the master-smith.

The building is now at the level throughout of the first story or flat, and the walls have reached to within a few inches of the finished line of parquetry. The foreman is engaged in finding the centres of his doors, windows, fireplaces, &c., and these centres are all carefully marked upon the plans. He has fixed to the scaffolding outside the walls strips of deal, and tells off upon them the distances from centre to centre of the front window openings. If the walls are rectangular, he tells off the same distances upon similar strips of deal fixed to the scaffolding outside the walls of the courtyard. Lines of thin cord are then stretched from one point to another, and the principal centre lines drawn, as it were, full size upon the works. Where these lines cut the walls, he spreads upon the latter a layer of plaster, and then with the aid of the plumb line, square, and a piece of black chalk (*pierre noire*), he marks upon the plaster the centres of all openings, which marks remain until the masonry is terminated; and they serve again to find the centre of the keystone in the arch over. The first course has now to be laid over the shop-window lintels, and this is a projecting cornice of hard stone. The top of it forms the sills of the first story or entresol windows, which are casements, and descend almost to the parquetry. Up to this height the stones have been lifted with slight difficulty, either rolled upon an inclined plane made of planks, or pulled up by the "*chèvre*," a species of "crab." But, in the meantime, four tall masts, some 70 ft. high, have been fixed just in front of the façade. These will be connected at intervals with transverse planks, and further strengthened with cross-pieces, the whole forming, when finished, a skeleton shaft. Within it, the blocks of stone will be lifted to the height required by chains swung over a wheel fixed at the very top, the motive power being stationed at the bottom, and consisting of steam or water or manual labour, or the last new invention,—human force, however, being the most frequently employed, for in the present state of education it is the cheapest in the end.

The façade now being put together will be composed of solid blocks of freestone, about 22 in. thick to be laid in the same position horizontally as they were found in the quarry, and one of the reasons for this is that the bed of stone ought not to be exposed to the atmosphere. Nor ought the heart of the stone to be exposed. As is well known, the material used in building operations in Paris is a soft limestone found deposited by layers in the quarry, and it is extracted in large blocks. It is not worth while to saw those layers horizontally, even though it only requires the toothed saw to do it. The height of each course is the height of a layer of stone, and its power of resistance to the many deteriorating influences around it depends upon the free exercise of that natural action with which it is endowed. To use it as mere ashlar facing is positive destruction to it. In London the appearance of an ashlar face soon after completion is well known. The salts developed in the mortar behind it (of plaster, lime, or cement) force their way to the surface, and though Portland stone may be sometimes strong enough to resist the internal disintegration which the passage of such salts causes, the soft limestones of France suffer actual injury in their component parts from such action. Soft calcareous stone easily soaks up water, but it also easily ejects it; and provided the action caused by moisture be free from the outside to the inside of the stone,—provided the stone be so placed as to permit the moisture it has received from the outside to be drawn away from it in a fluid state, its component parts will not suffer deterioration. But if (as in the case of ashlar when only one side is free) the exposed face of the stone dries and leaves the heart unnaturally wet, the internal moisture, which must find a way out, will crystallise upon the surface which will become inflated and then scale off. Damp attacking a solid stone wall from the inside of the room which it encloses is drawn from it by natural means; but damp penetrating internally, a brick wall faced with ashlar destroys the latter, because the moisture cannot be drawn naturally through the stone, which on its external surface is dry. Consequently, if soft calcareous stone, such as that found at Conflans Ste. Honorine, at Méry, and in the more immediate neighbourhood of Paris, be used, it must be laid in solid blocks, and upon their natural bed. The fixing of one stone is but the repetition of another, just as the laying of one iron floor resembles another. M. Viollet-le-Duc explains how these stones should be laid. He says*:—"Each stone ought to be fixed in its place upon thick wedges of wood, leaving a clear space between the courses of 3 in. The mortar should then be spread under it over the whole surface to a thickness of nearly 1 in., then the wedges should be withdrawn and the stone allowed to descend upon the mortar, and pressed until only ¾ in. thickness of mortar remains to form a joint." It is needless to add that, as a rule, French workmen cannot be persuaded to do this. The joints are generally "run" in plaster. The stones are laid upon wedges about ¼ in. thick, and these are not withdrawn. Once in their places, and tested with plumb-line and level, the outside edges of the joints are stopped with thick plaster, and only a small hole left in one topmost corner, into which liquid plaster is poured until it overflows, and thus proves that the interstices between the blocks are filled. A joint thus made in plaster does not generally vary in height from ¼ in. to ½ in.; but it is not what ought to be considered a workmanlike joint.

The front wall is now ready to receive the principal cornice, the top of which is on a level with the base of the mansarde; and this level is about 65 ft. 10 in. above the foot-pavement, which is the extreme height allowed by law for a house on a boulevart of 20 mètres wide and upwards. There are, however, still means to construct one more story, and an apology for another. The one will compose a flat, and the other a host of small bedrooms, a few, perhaps,

* "Histoire d'une Maison."

to be let separately, and the majority to be apportioned amongst the various tenants for the accommodation of their servants, both male and female. These stories are both in the mansarde; but the lower one is so contrived that the external wall is perpendicular, and not sloping. The laws relating to roofs in Paris are as logical as they are precise, and all the ingenuity of the Mansards, both uncle and nephew, could not have evaded them had they tried. In streets less than 15 mètres wide, the roof must not exceed a height equal to half the depth of the building, including the projection of the top cornice; and the profile of the roof on the portion facing the street must not overstep a line inclined at an angle of 45°, starting from the extreme projection of the top cornice to the ridge. But in the case of this house, which is upon a boulevart of 20 mètres wide, the straight line of 45° may be altered to a quarter of a circle, whose radius is equal to half the width of the building, exclusive of the projecting top cornice, which must be left outside the quarter of the circle. The chimney-shafts must not break the sloping line of the roof, except at a distance of about 5 ft. measured horizontally from the external face of the front wall, nor must they rise more than 2 ft. above the ridge. The external face of the dormer windows facing the boulevart must be set back at least 1 ft. from the face of the front wall; and their width must not exceed 5 ft. from out to out. The compulsory setting back of the dormer windows favours the construction of a broad continuous balcony over the top cornice, which causes the fifth floor of a Paris house to be much appreciated. There is also a continuous balcony supported upon corbels over the first floor, and smaller balconies of slight projection to the other windows of this house. The balconies are constructed of slabs of hard limestone from 8 in. to 10 in. thick, moulded on the face, and their soffits are panelled.

Many of the Paris houses are roofed with rolled iron principal and common rafters and purlins all enveloped in plaster, forming sloping walls of great solidity. I intend to eschew all battens to receive the slates and lead flashings, for it has been satisfactorily proved in France that the best foundation for lead coverings is plaster. The mode of making lead terraces—without rolls or other excrescences and presenting a perfectly even surface—has reached a high pitch of development from the exertions of M. Monduit,* who, under the direction of M. Viollet-le-Duc, has successfully revived the forgotten traditions of the lead and copper beater's art; and with such success as to leave the firm, of which he is the worthy head, without a rival in Europe, and with very few imitators in England. Strips of iron are to be screwed to the iron rafters, and the slates will be suspended from them upon copper hooks. In very good work such as this, the lead flashings and lead "slates" are hooked—never nailed or fastened with cement—or they are dressed up freely under a projecting stone-fillet moulding. This practice is advisable, because the extreme heat and cold experienced at different seasons in Paris have a more potent effect upon the contraction and expansion of metals, than possibly London architects, whose deadliest enemy is damp, will choose to believe. The French dormer windows are, of course, of all sizes and shapes and almost of all materials. Some are of oak painted like lead, others of zinc, lead, and sometimes copper. Those which can be supported upon the front wall are generally of stone. In the time of Louis XIV. they were often made of oak and covered with lead. But it is now known that oak deprived of communication with the air destroys its lead covering. The same action does not take place, at least so rapidly, when the framework is of deal. But, for my lead dormers, the crudest possible skeleton in iron has been put together and painted. Upon this the skilled workman has adjusted the different pieces of beaten lead ornament, moulding, or plain covering, as the case may be. He has soldered them together at the back and round the iron; and the dormers finished at the workshop have only to be packed and sent to the building, of which they form no insignificant part. Similar, but of course more elaborate works, upon a score of public and private buildings in France, are due to the ordinary workmen taught in the workshops of M. Monduit; and I have seen some of them converting, with eye and hand alone, rough pieces of copper and lead into human shape from a full-size drawing suspended before them.

The roof is now covered in, and the party-walls and chimney-stacks are finished; but the façades fronting the boulevart and the court-yard have yet to be dressed, cut into mouldings, and carved, for at present the different architraves, cornices, pediments, and mouldings have been merely "blocked out" by the ordinary stone-cutters. Another set of workmen have now to shape them according to the full-size profiles which they have received from the architect. All the nearly horizontal surfaces of the stone exposed to the weather, excepting the balconies, will be covered with zinc. Where there are no projecting balconies to the windows the sills will be covered with zinc. A mahogany rail will be fixed in the opening upon iron brackets, secured to each reveal, for all the windows of a Paris house are casements descending to within a foot or less of the parquetry.

As the carvers and sculptors finish, the scaffolding descends from story to story, until, arrived at the ground-floor, the Parisian architect may pardonably congratulate himself upon having accomplished a piece of work fairly artistic when compared with similar work executed in another and a neighbouring capital. But he does nothing of the kind, for he knows that his troubles only begin when the roof is covered, and the task of completing the interior begins. He has summoned the contractors to wait upon him at the usual hour,—between seven and eight a.m.,—when the detail drawings, copies of which are already in the hands of the joiner, smith, and smaller tradesmen will be re-examined by both architect and contractors. On the same day there will be an appointment at the works, and the curious passer-by will possibly see, towards four in the afternoon, a crowd of respectable, sometimes polished-looking, men standing in a forest of scaffold-poles. These are the contractors. They are seldom displeased at being often kept waiting, and some, doubtless, while away the time by deploring the last Revolution and discussing the next. Suddenly they all take off their hats, for the architect has arrived, and has summoned the master-companion to attend him in the inspection he is about to make in company with the whole bevy of contractors. As he passes through the works the men salute him, and from the beginning to the end of a new building he is the recognised master-of-the-work, whose decision is final, and whose position is unassailable. And the politeness with which they treat him is increased when, as I know from personal experience, he sometimes happens to be a foreigner.

The first thing now to be done is to fix the principal staircase, and this shall consist of a comparatively new combination of iron and plaster with treads of white marble and a wrought and cast-iron railing covered with an ebony hand-rail. An iron carriage of an L shape, the upper edge of which is cut into the requisite number of steps, is secured at the bottom to the brick vault or a wall, and at the level of the first landing to a joist much the same as in wood construction. Each riser is a piece of thick sheet-iron fixed at one end to the carriage with an angle plate and bolted, and the other end is inserted in the wall. To form the soffit, iron bars must be placed below the risers; one end of them is secured to the flange of the carriage, and the other let into the wall. Upon these bars thin iron rods are laid, and this skeleton is filled with plaster concrete in the same way as the iron floors are treated. Not alone the soffit, but the section of the stairs, is thus formed, and upon the latter will be fixed slabs of white marble with the moulded nosing of each returned over the iron carriage. The landings are formed with iron joists, bars, and rods, in the usual way, enveloped in plaster concrete. This horizontal plaster surface will afterwards receive a marble covering, the border of which will be in slabs of white marble, and the centre in small cubes of coloured mosaic work. The standards of the iron railing will be fixed to the external face of the carriage, and the soffits of the stairs and landings will be finished in plaster in the usual way. The metal portions will be painted not to imitate marble, but with iron minium obtained from Belgium. A few years ago a small staircase of this description was constructed by M. Millet,—the architect of the Château de St. Germain,—in a house erected for himself, with one exception, that the treads and landings were covered with polished oak instead of white marble.

The staircase fixed, contractors and architects can get up to the fifth floor, which is to be let as a residence, and so the living-rooms and the vestibule must be boarded with polished oak parquetry, only the kitchen, and the passage leading to it, will be tiled. The oak door frames have now to be put in their places. In walls of one brick or more thick these frames are fixed with cramps, or rather staples, against the face of the wall; the reveal is made with plaster, and on the opposite side an oak architrave about as thick as the plaster coat, is secured with iron staples. These staples (*pattes*) are screwed at one end to the wooden door-posts, and at the other are split into claws, which are inserted into the wall, and fixed with plaster. The junction of the wood and plaster is concealed by wood mouldings. In Paris, no wood lintels are ever used. In a solid stone wall the arch over an opening is made through the whole thickness of the wall, and the rebate to receive the wood frame is cut after the building is covered in. The frames are fixed in these rebates with iron staples and plaster. In a brick wall which has only its own weight to support, the openings are covered with iron bars, upon which bricks are laid in the form of an arch, and the whole enveloped in plaster. The ceilings and cornices will be much more artistically finished than people are accustomed to see in England; and, descending from floor to floor, the ornamentation of both will increase in value. The common use of *carton*, and the fact that in Paris there are firms of decorators who possess in their workshops models of nearly every form of enrichment invented since the sixteenth century, renders it possible to impart to any set of rooms any fashion of architectural ornament. A client has but to say that his drawing-room must be in the style of Louis XIV., XV., or XVI., and hey! presto! it is done,—mere manufacture, doubtless, but not more so than the corresponding custom in this country of presenting a client with Early, Middle, or Late Pointed details, according to inclination, and the contents of the buyer's purse. These applied ornaments of *carton pierre* are generally of a more delicate description than can be obtained in London, and celebrated decorators like MM. Huber, Brothers, are hardly known here; yet some of the best buildings in France, and others in Germany and Egypt, have been carved and ornamented by them. French woodwork is often overloaded with what, when painted, appears to be carving; but, generally, the enrichment is *carton pierre* stuck upon wood mouldings. In all flat residences, mirrors with gilt frames are placed over all the fireplaces, those of the bedrooms included, and they are considered neither as fixtures nor furniture, but as part of the architecture. In the better class residences the fireplaces are built for the consumption of wood, as of old, but in the smaller ones cast-iron grates are now introduced for burning coal. The fittings of the shops are usually left to the taste of the tenants who are to occupy them, although the cost is defrayed by the landlord. The sanitary arrangements of a Paris residence are perhaps not so satisfactory as those of a London house, but the water-closet apparatus is quite as scientifically made as that in use here,—particularly when it is remembered that the existence of a closed cesspool renders a copious flow of water almost impossible. Ever since the time of Louis XV. this monument of human humiliation and relief has been called by Frenchmen "*l'Anglaise*,"—a compliment which Englishmen with habitual modesty are probably not unwilling to accept. A host of other things ought to be described, but time is relentless. Suffice it to point out sundry little peculiarities of French custom in domestic life and its architecture, and the difference between it and that of England.

The ordinary Paris house is built of stone, iron, and oak; the ordinary London one of brick and deal. The common house fronts of Paris are the works of educated architects; scrape the outside of a superior London residence and it will be found to be only Gower-street disguised. The Parisians love the open air, large casement openings and balconies, and they are not ashamed at being overlooked by their neighbours and the passers by; the Londoners shun their native fog, prefer sash windows or guillotines, and are often woefully afraid of being observed. The Parisian uses his bedroom by day, and only eats in his dining-room; the Londoner often sits all day in his dining-room, and only sleeps in his bedroom. The Parisian system of iron floors is almost fireproof; in London it is only those

* To the well-known firm of which this gentleman is the head France is indebted for the lead and copper enrichments on the dome of the Invalides, the roofs of the New Opera House, the Cathedral, &c., in Paris, the Château de Pierrefonds, and a host of châteaux new and old throughout the country.

buildings technically called fireproof of which when burning the firemen are afraid. In London the gas circulates in the walls, between the joists through cellars and roofs, in pipes embedded in plaster or cement—a perpetual and hidden source of danger; in Paris no gas-pipes can legally be concealed except they pass freely through an iron or zinc tube having at each end direct communication with the open air. The floors of ordinary Paris houses are lined with polished oak artistically laid; those of even the best London houses are of rough deal. In an ordinary Parisian residence it costs at least 10*l*. a year to keep the oak parquetry bright, whereas English carpets could be got to cover it for less than 40*l*. cash, and they would last five years. The French use carpets which are always movable; those of the English are rarely raised. Of the odours which sometimes emanate from houses in London many are born of the carpet; those of a Parisian drawing-room savour of bee's-wax. The walls of the latter are painted and often gilt; those of a London house, even a fashionable one, are papered. Bugs are of both nationalities, but the London bugs are better cared for than their Parisian cousins. The latter can find but slight shelter in roof-rafters and floor-joists forming a concrete mass of iron and plaster; the fir and deal combinations of the London speculating builder's house are just the thing for vermin. The party-wall of a block of Paris residences is a solid mass, 18 in. thick, and no flues may be constructed within it; that of a London house is in parts so permeated with flues and fire-places as to leave only 9 in. of solid brickwork between two houses. The Parisians use thin walls of hollow bricks supported upon the iron floors and lintels; the Londoners rack their brains over the philosophy of a wooden trussed partition. Parisian doors are generally folding, and as specimens of joinery are thin, leaky, and inferior. The iron and brass furniture upon them is clumsy. The locks are never mortised, and always dangerous to unwary fingers. A French key is a thing to look at, not to handle, and it is an awful object of contemplation. With the exception of the *espagnolette* and the *crémone*—instruments for fastening casements and folding doors—the English locks and keys are incomparably superior. A London kitchen and its offices occupy a whole floor and represent the extreme of wastefulness; a Parisian kitchen covers a space of about three or four yards square, and is the extreme of economy. The Parisians every morning deposit their dust at the side of the roadway, where the dustmen, both private and municipal, are ready to take it away; the Londoners carefully store their refuse for days together beneath their own and their neighbours' noses. The Londoner employs many servants, the Parisian few. French middle-class wives help their husbands in the trade or profession they exercise, and are proud of office or shop. English wives of the same class often live in villas and ignore both. The Parisian cheats posterity, the Londoner overburdens it. In London several families often live in a house constructed for the accommodation of only one: in Paris, as a rule, each family lives in a self-contained residence. Generally speaking, Paris lives in, and London out of Town; and when once at home, the Parisians are lodged horizontally, the Londoners vertically. The former walk, the latter climb, from room to room.

William H. White.

THE NEW KARAKEUI BRIDGE, GOLDEN HORN.

The masonry of the abutment on the Stamboul shore of the Golden Horn being nearly finished, it is hoped that the opening of the new iron bridge to traffic will not be delayed much longer. It was in 1872 that the Ministry of Public Works contracted with Mr. George Wells, C.E., represented here by Mr. Ross Taylor, C.E., for the construction of an iron bridge, to replace the old wooden structure connecting Galata with Stamboul, and it was then stipulated that the work, including the placing in position of the new bridge, should be completed by July 28th, 1875. The *Levant Herald* says that, according to the original contract, the undertaking was to be executed for a sum of 95,000*l*. The bridge was to be 450 mètres, or about 1,350 ft. in length, and was to have been laid across the Horn, not at Karakeui, but between Azap-capou and Oun-capan. Shortly afterwards the Government changed their mind as to the position of the bridge, and the order for the material having already been given to an iron-foundry of Newcastle, a new contract became necessary. Messrs. Wells and Taylor having in the mean time quitted Constantinople, the second agreement was signed by a third party, acting temporarily as Mr. Wells's agent; but the document omitted to specify the dimensions of the bridge, a modification whereof was rendered indispensable by the change of site, and this omission was at once noticed by the contractor, who pointed it out to the Ministry of Public Works. That department acknowledged that, in view of the change of site, the length of the bridge would have to be increased to 486 mètres, but availing themselves of the omission in the contract, refused to allow anything above the contract sum of 95,000*l*. for the extra 36 mètres. The contractor hereupon had recourse to a suspension of the work, and a litigation followed, which ended in a compromise, the Government consenting to pay some 6,000*l*. in excess of the sum originally stipulated. The works were then resumed, but the prospect of their completion within the allotted period became again doubtful in consequence of a fresh difficulty. It was found on examination of the stone abutments that they were hardly solid enough to support the weight of the bridge, and it was deemed necessary to demolish them partly so as to rest the iron piles of the bridge on the more solid portion of the masonry. Surveys were held, and after considerable delay, the Government asked the contractor to add 20 ft. of ironwork to the bridge at each end, agreeing to pay him an additional sum of 3,000*l*. for the prolongation. The extra ironwork was accordingly ordered out from England, but when the bridge, thus lengthened, came to be placed in position, it became apparent that the Ministry of Public Works had given about 9 ft. too much in its estimate! To remedy this error, it was determined to cut out a basin in the abutment on the Stamboul shore, and this expedient was attempted. But when the workmen, in cutting away the masonry, arrived at a certain depth, they encountered the iron clamps which hold the blocks of stone together, and through which it was impossible to cut without causing the whole of the abutment and the contiguous stone wharf to give way. In this dilemma, the Government requested Mr. Taylor to raise the level of the bridge by 3 ft. at the Stamboul end and by 2 ft. on the Galata side. Mr. Taylor at first opposed this demand, having already, on the dimensions given by the Ministry, fixed the height of the bridge at the extremities at 7 ft. 3 in., but he ultimately consented. The level of the bridge at both ends was therefore raised by the discharge of a portion of the ballast in the pontoons. But the bridge itself having been ready by the 28th of July last, according to contract, the contractor, declaring that the subsequent delay had been due entirely to the Ministry of Public Works, now claims an indemnity of 100*l*. for each day that shall have elapsed between that date and the final delivery of the bridge into the hands of the Government.

THE INFLUENCE OF EXHIBITIONS IN DIFFUSING A TASTE FOR ART.

Professor Archer, F.R.S.E., director of the Liverpool Museum of Science and Art, and president of the Royal Scottish Society of Arts, was entertained at dinner by the members of the Liverpool Art Club on the 22nd ult. Subsequently he read a paper before the members "On the Influence of Exhibitions in Diffusing a Taste for Art." He said wealth was absolutely necessary to art. No man could have leisure to indulge in æsthetical pleasures until he had insured for himself immunity from those cares which were inseparable from the struggle for existence. The Frenchmen and Italians had more refined taste than the English, and he believed it arose from the fact that they had grand galleries of art—exhibitions to go to; and the art feeling learned in them, and carried from one generation to another, had survived even the debasing influence of francs and centesimi. These were facts with respect to Continental nations, but there was one connected with their own which was worthy of note, but it rarely, if ever, had been considered. No matter how low the popular taste had fallen, there had always been a select conservative few who had felt the love of art in its highest and best qualities, and who had gathered and garnered in their homes treasures of art which made the nation rich in art possessions. They formed exhibitions in their own houses. The gleanings of the Exhibition of 1851 were brought together at Marlborough House, and formed the nucleus of that grand collection at South Kensington, which, whatever the typical English grumbler might think and say, was the greatest and best school for the art student in the world—a fact which was now unhesitatingly admitted even by Frenchmen. Through all grades of society good seeds were sown, and although their germination and growth might have been slow, we were now beginning to see the fruit ripen. Lancashire could boast as many *connoisseurs* in art, and as many choice collections, as any similar extent of the civilised world; and it would be most unfair, and he ventured to think untrue, to deny that much of this taste, good and bad, was due to the Manchester Exhibition. He believed he was especially right in calling it a great exhibition, for he did not believe that any other country than Great Britain could have formed such a one. It was only a careful selection from the art-treasures of private collections; there was no State aid, and no contributions from the national collections, and in this respect the Manchester Exhibition was unique. It would always be a matter of deep regret that so little was done to secure for the museums of this country from the rich abundance of beautiful objects which could have been obtained in every department of the Vienna Exhibition. No nation could have reaped greater good from purchases judiciously made than we could, and yet nothing, comparatively, was spent. Messrs. Elkington's magnificent work, "The Poetry and Music Vase," the Worcester porcelain decorated by Bott, and several of the splendid productions of Mintons and Copeland, were of such a character as to make them of national importance as museum specimens, and to lose them was a misfortune to the nation. Happily, there was in these firms a spirit of patriotism, as well as of progress in art, and it is well known that, for some of their finest things, they refused foreign offers, preferring to keep them on their hands rather than let them leave this country. Doubtful as this might appear, it was nevertheless actually the fact. The museum authorities of Austria, Prussia, Russia, France, Bavaria, Wurtemberg, and the United States of America, all bought more largely of art-objects in the Vienna Exhibition than we did.

THE LINCOLN TOWER, WESTMINSTER BRIDGE-ROAD.

Christ Church, at the angle of Westminster Bridge-road and Kennington-road, which has for some time been in course of erection to replace Rowland Hill's Chapel in Blackfriars-road, which is about to be taken down, is now almost completed externally. The whole of the building has been covered in, and the more prominent architectural features, consisting of the Lincoln Tower, the tower and spire over the central octagon, and that surmounting the lecture-hall, are now receiving their finishing touches. The Lincoln Tower has been finally completed within the last few days by placing the vane on the spire, and the scaffolding is now in course of removal, distinctly exposing to view the large proportions of the lofty structure, which, with the exception of those at the Houses of Parliament and Westminster Abbey, is said to be the highest tower in the metropolis. Its exceptionally great altitude is proved by its being visible at distant points along with the Victoria and clock towers, and the towers of Westminster Abbey only, although the new structure stands upon comparatively low ground. The tower is carried up to a few feet below its turrets in Kentish rag stone. From this point the materials of the structure, including the whole of the spire, are Portland stone. The latter is octagonal in form, and one of its distinctive features consists of bands of red Dumfries stone being carried round it at three different elevations, between which are carved stars on the Portland stone facing, intended to represent the stars and stripes indicative of the several States of the American Union. Similar carved stars are also carried round the upper portion of the tower.

The Pollution of the Thames. — A summons has just been issued against the Local Board of Hampton Wick (of which Mr. T. J. Nelson, City solicitor, is chairman) by the Thames Conservators, to recover 94,000*l*. for penalties incurred by failure to divert their sewage from the river Thames.

BELFAST ARCHITECTURAL ASSOCIATION.

ON the 6th inst. a general meeting of this Association was held in the Museum, College-square North, when a paper was read by Mr. Conway Scott. Subject,—"Notes from an Engineer's Field-book." Mr. Robert M. Young, hon. secretary, announced that in addition to other prizes, Mr. Vere Foster has offered prizes amounting to 6*l.* for the best design for a town school-house, and Sir Charles Lanyon has expressed his intention of giving a prize of 2*l.* 2*s.* Mr. Scott proceeded with his lecture,—the first part of which dealt with personal experiences in the survey and formation of great American railways,—the camp life and scenery of the country, its topography, races, and mineralogy; and in the second part he referred to Canada, the Grand Trunk Railway through the British possessions, the question of emigration, and other subjects of an interesting nature. The paper was spoken to by Mr. Lockwood, Mr. R. M. Young, Mr. W. R. Jackson, and Mr. Watts; and on the motion of Mr. Jackson, seconded by Mr. Watts, a vote of thanks was passed to Mr. Scott.

THE SURVEYORSHIP OF THE BRENTFORD LOCAL BOARD.

SIR,—I am pleased to see that the letter which appeared in the *Builder* of the 4th inst., signed "One of the Humbugged," and to which you were pleased to append an editorial note, has come under the observation of the members of this body.

Being a disinterested party, I was thereby enabled to read both letters, signed respectively "One of the Humbugged" and "Stephen Woodbridge," with an impartial feeling; and, in comparing the two letters, I find that the real cause of complaint in the former letter is not in any way mitigated by the statements contained in the latter, but I should rather infer from its perusal that the whole affair was "cut and dried," and that the insertion of an advertisement inviting applications for the surveyorship was a farce. As to the statement made by Mr. Woodbridge in his letter,—"That at the time the advertisements were issued no member of the Board (not even, I believe, the gentleman who was eventually elected) had the least idea that the member referred to would be a candidate for the office," I think such a remark an insult upon the readers of such a paper as the *Builder*,—a statement, I believe, that would not be accepted as a fact by the most credulous reader of its pages. If it is to be supposed that there is a shadow of reason in the accuracy of such a statement, then we must force the belief upon ourselves that when the advertisement appeared it was found to contain the magnificent offer of 120*l.* yearly, and this large income so much worked upon the mind of the selected (member) candidate that he "condescended" to resign the membership of the Brentford Local Board to become its surveyor.

I inclose my card. L. L.

*** The *Richmond Times*, commenting on the letter which appeared in our columns and the answer which has been given, says:—"Now, it may be perfectly true that none of the Board had any previous knowledge of Mr. Figg's intention to apply for the surveyorship, but they must not be surprised if outsiders formed a different opinion, especially before any public contradiction had been given to the letter in question. It may even be quite true, as Mr. Figg avers, that he did not 'make up his mind' to become a candidate until the day before he sent in his application; but if so, some kind friend must have 'made up his mind' for him; for we are not overstating the case when we say that his candidature was a common topic of conversation throughout Brentford some time before he applied,—indeed, we personally heard of the matter at least a week before."

THE WAGES QUESTION.

CASE UNDER THE EMPLOYERS AND WORKMEN ACT.

MR. H. R. GILL, a carpenter and builder, in business at Polygon, Somers-town, appeared before Mr. Barstow (Clerkenwell Police Court), to answer a claim which was made against him by Arthur Abbott, journeyman carpenter, of Wharfdale-road, under the provisions of the Employers and Workmen Act, 1875, for 4*s.* 7*d.* alleged to be due to the plaintiff by the defendant for wages earned by the former, being 1*d.* an hour on forty-five hours' work, from October 19th to and including October 25th, over and above the sum of 8*d.* an hour due by the defendant to the plaintiff for such work. The plaintiff, who is a skilled workman, was engaged by the defendant's foreman on October 19th, and at the end of the week he was paid at the rate of 8*d.* per hour, whereas the practice and custom of the trade was (it was said) to pay 9*d.* per hour. The plaintiff said the question had been settled by the delegates of the employers and the men. Had never received less, though he had worked for several employers in different parts of the metropolis. Mr. Marten contended for the plaintiff that he was entitled to recover by the custom or usage of the trade. Cases bearing on the point having been stated by the learned counsel, Mr. Barstow said the question was whether there was a custom throughout the entire trade to pay to skilled artisans 9*d.* per hour. At present he was of opinion that there was not. Witnesses having been examined on the subject, Mr. Barstow said it was the duty of the person seeking to be hired to ask what was the rate of wages he was to receive. The plaintiff had not done so, and therefore he considered that he was bound by the rate of wages that was paid to skilled artisans in the defendant's shop. He dismissed the summons, but refused to allow the defendant any costs.

THE TOLL-GATES ON THE DULWICH COLLEGE ESTATE.

IT is stated that the governors of Dulwich College have resolved to abolish the several toll-gates on the estate, which, it is said, have had the effect of decreasing the traffic on the particular roads where toll-gates exist, and thus injuring the college property for building purposes, notwithstanding the great increase of building in the neighbourhood generally. It appears that the necessity for the tolls was never urgent, inasmuch as the cost of repairing the roads has not amounted to half the sum paid by the public in tolls, the balance being profit to the governors. For several years after the reconstruction of the college in 1857, the tolls of the college estate roads realised 500*l.* per annum. During the years 1859–62 the total cost of repairs to the roads and expenses was 673*l.* 12*s.* 6*d.*, being an average outlay of 229*l.* 9*s.*, giving an average profit of 270*l.* per annum. In 1862 they were let for 520*l.*, and from March, 1867, to March, 1868, the contract was 580*l.*, the actual receipts for ten years down to 1867–68, being 5,183*l.* 13*s.* 11*d.*, or an average of about 518*l.* per annum. It seems that since 1868 the annual value of the tolls have been constantly decreasing, in consequence of the continued falling off of the traffic in the roads in which the toll-gates are placed, and it is said that one of them, at the end of Lordship-lane, does not now even pay the expenses of keeping up. Under these circumstances it is not surprising that the governors of the college should contemplate their entire abolition, a step which, if carried out, will doubtless give an impetus to building on the estate, and thus add to the annual revenue which the governors at present receive from their tenants from ground and other rents. It is suggested that, in the event of the tolls being abolished, the Camberwell vestry would undertake the task of keeping the roads in repair.

A DELIGHTFUL PLACE!

DR. VERITY reports that, last week, he paid a visit to some of the huts built on Hirwain-common, Bryncethin, Glamorganshire. He says the huts are made of turf, and therefore in wet weather absorb moisture. They are much overcrowded, and from their present construction it is not possible to remodel them so as to make them fit for human habitation. The huts are erected on ground saturated with wet, and constructed with one basement floor, and each contains one general room and two sleeping-rooms. The size of the rooms are 12 ft. by 12 ft., and 7 ft. high. In one of the houses he found six adults and four children; in another, eight adults and four children; in another, seven adults and five children; in another, nine adults and three children; in another, five adults and four children; and another, five adults and four children. There is no drainage to the huts to carry away the rainfall or slops; they are crammed full of families, all huddled together irrespective of age or sex. The walls are generally moist, by reason of the damp nature of the materials used in their construction. The wind penetrates through the interstices, and the walls are insufficient to maintain an equable temperature. The floors are damp and made the receptacle of refuse and filth. There is no closet accommodation attached to one of them. The living apartments are overcrowded, as many as eight sleeping in one room; and this state of affairs does not rouse the proper authorities. Glamorganshire always boasted of its sanitary condition. Is there anything to boast of here?

SEWER GASES AND SMELLS.

AT a recent meeting of the Poplar District Board of Works, Mr. Bracebridge rose to move "That a special committee of six members of this Board be appointed to wait upon the Metropolitan Board of Works, and submit to the consideration of the said Board the fact that foul and offensive exhalations and smells arise from the air-shafts and other openings in the main sewers in this district, and that the said nuisance ought to be abated, as being greatly injurious to health." Mr. Bracebridge proceeded to remark upon the prevalence of fever, and attributed it to the sewer smells, which were so abundant, and mor especially in the neighbourhood of Poplar ridiculing the idea that in the present age of scientific discovery, a remedy was not to be found.

In the course of the discussion,

Mr. E. R. Cook said that he, amongst other people, thought that it was not the most fortunate thing that the present system of sewerage had been adopted. The great evil which attended it the Metropolitan Board were quite alive to, and had tried every reasonable suggestion that had been put before them. The air-shafts with great fires had been tried, but had failed, for some of the gases being heavier than the air it had been found that upon quitting the shaft they turned over and went down the nearest chimney-pot, so that it was impossible to adopt that method. Then they had tried the disinfection of the sewage by immense quantities of carbolic acid and chloride of lime, and the placing of charcoal boxes at the mouth of the ventilators, but the aqueous vapour coming up from the sewers wetted the charcoal, and rendered it useless as a disinfector. Mr. Cook then proceeded to blame architects for the illness arising from the sewers by their permitting an improper system of drainage, by which sewer gases were admitted into the house, and urged that the Board should exercise its powers to the fullest extreme, and seek for more to prevent the evils from drainage arising from the negligence of architects.

Mr. Cook, who is a soap-boiler, and has works within the district, represents the District Board at the Metropolitan Board of Works. He is apparently ignorant of the fact that probably not one per cent. of the houses in the district are built, or have been built, under any arrangement in which an architect's assistance has been included.

In reply to a question, the Surveyor (Mr. Parker) said that plans only of the drainage from the house, and not in the house, had to be lodged with the local authorities.

This is a most surprising statement from Mr. Parker, who has been surveyor to the Board since its formation in 1856. There can be no doubt but the Metropolis Local Management Act confers authority on the District Board over the private drainage in the house as well as over that portion under the street. If Mr. Parker has acted for the last twenty-two years on the opposite view, it is scarcely a matter of wonder that complaints should be heard.

Mr. Bracebridge, in accordance with a suggestion from the chairman, altered his resolution to the effect that it should be presented by Mr. E. R. Cook instead of a deputation, and in this form it was eventually adopted.

ILLEGALITY OF BUILDING ON LAND REQUIRED FOR THE PURPOSES OF A PARK.

A LESSON has been taught by one of the Vice-Chancellors to the Corporation of Sunderland, at the suit of the Attorney-General.

The information filed by the first law officers of the Crown, was for an injunction to restrain the Corporation from erecting public buildings on parts of land adjoining Sunderland Park, and which the Town Council had recently procured for the alleged purpose of enlarging the Park in question.

The existing Park was now upon 15 acres in area, whilst the land newly acquired was in separate plots, in all covering about 10 acres. On a portion of this newly-acquired land, the Corporation had taken steps to build a Town-hall, a public library, a school of arts, a museum and Corporate buildings.

Counsel on behalf of the Corporation opposed the issuing of the injunction, urging that the land was vested in the Town Council, with a discretionary power to use it for public purposes, and if even that any trust were imposed upon it, it was within the term of the trust to use it for the objects in question, the erection of which, it was said, would be an improvement and protection to the Park.

The Vice-Chancellor was of opinion that the erection of any of the proposed buildings, except a museum and conservatory, was beyond the jurisdiction of the Corporation, even the library and school of arts, and at once granted the injunction prayed for by the Crown.

BUILDERS' COMMISSION.

IN the Common Pleas Division of the Supreme Court of Judicature, on the 4th inst., before Mr. Justice Brett and a special jury, the case of Potter *v.* Pilkington was heard. The plaintiff sued to recover commission upon an order for the asphalte required at the new St. Thomas's Hospital. The defendant, on the 24th of May, 1866, wrote,—"If you succeed in getting me the asphalte works at the hospital, I undertake to pay you a commission of 15 per cent., provided I am not

called on to pay the builder or contractor for the said works any commission or discount out of the said works. If the builder or contractor should require his commission I agree to pay you a commission on a reduced scale, as shall be agreed on between us." The defendant laid down the asphalte, and in 1873 he received 7,045*l.* for so doing. The plaintiff claimed 15 per cent. on this sum; but the defendant paid into court 352*l.* 5*s.* 4*d.*, being a commission of 5 per cent., the builder having deducted 10 per cent. himself when he paid the money.

Some evidence was given on both sides upon the question what was a reasonable amount to be paid to the plaintiff; and

The jury found a verdict for the plaintiff for 2½ per cent. beyond the amount paid into court.

PUBLIC IMPROVEMENTS AT LOFTUS.

Some very extensive improvements of a public character are being made in the thriving little town of Loftus-in-Cleveland. At the west end, on the Loftus estate, the Earl of Zetland has lately laid out about twenty acres for building sites, and a number of men have been employed during the summer, and up to the present time, in making new streets and laying the necessary drains. In place of the old road at the entrance to the town from the west, a new street, 50 ft. in width and 500 yards in length, has been formed. A large number of sites have already been let, including several for villas and a number of houses, are now in course of erection. The plans of these important improvements were prepared by Mr. M'Lean, agent to the Earl of Zetland; and the whole of the work has been carried out under his supervision.

GREEN AND BLUE COLOURS FOR DISTEMPERING.

Sir,—I should be much obliged if I could be informed if there are any greens for wall distempering made up without arsenic? Also, if this poison is used at all for blues or any other colour? A Subscriber.

THE STRIKE AT OVER DARWEN.

Sir,—Will you be so kind as to correct a report which has gone the rounds of the press, and has appeared in the *Builder*. On the high authority of that professional journal it is believed that the stonemasons of Over Darwen are on strike through a reduction of 1*s.* per week. It is through a reduction of 1*s.* per day. The local rules specify 33*s.* per week in summer, and 30*s.* in winter. During the past spring and summer months, the employers of the building trade advertised through the local press and advanced the masons' wages 3*s.* to 4*s.* 6*d.* a week, making them 36*s.* a week, and as much as 38*s.* 6*d.*, to obtain labour. We think they ought to reduce the wages to 33*s.* a week only, instead of reducing them to 30*s.*, and for the purpose of keeping at that figure; hence the dispute which caused 270 masons to suspend work on the 22nd ult. I feel that the truth of our affair should reach you in its proper colour, and be made known in a paper which is highly appreciated and most honourable towards the Working Man.

STATE OF THE ROYAL ARCHITECTURAL MUSEUM.

Sir,—I shall have to give up subscribing to the Architectural Museum. Nothing but appeals for aid. I have had another begging letter from the secretary to-day. Ever since the council hid away the collection in their present hole, against which you always protested, this desperate struggle for funds has been going on. How much longer is it to last? The collection moreover is useless to me, for it happens that I want my youngsters to study Greek and Italian forms rather than Gothic, but I have been hoping against hope that it might one day become what the *Builder*, years and years ago, sketched out and advocated,—a complete Architectural Museum. A Worn-out Friend.

SILICATED CARBON FILTERS.

Sir,—I have been so much occupied during the last few weeks that I have not been able to read my *Builder* as usual, but I observe in the number for October 30 a statement with regard to the properties of the above filters which is so curious that I am led to ask for further information respecting them. The Silicated Carbon Company claim, as it appears, that their filter is "the only kind adapted for the removal of lead from drinking-water." It will be valuable information if the company will strengthen the bold claim which they thus put forward by stating upon what principles their filters act in effecting so paradoxical a physical phenomenon. For it is a fact well known to the merest tyro in science that a filter can only remove what is mechanically suspended in a liquid, and as lead is always in solution it is difficult to see what effect mere mechanical filtration can have on it. It is true that new filters of certain kinds, notably those containing charcoal in their composition, will to a certain extent oxydise, and therefore remove, various organic bodies in solution in water, *e.g.*, colouring matters, and possibly, also, sewage products in a certain stage of decomposition, but this property is soon lost, and, even if it were not, it is not easy to see how it could affect lead in solution. Moreover, if the lead is removed in an insoluble condition, it is obvious that the filter must be soon choked and rendered useless. Methinks, therefore, the company doth claim too much!

A Medical Officer of Health.

RINK.

Sir,—You are an exposer of humbug, and I trust you will discountenance the vulgar habit of calling things by their wrong names. What is a skating "*rink*"? I presume "ring" is meant. Then why, in the name of common sense, is it not called so? I remember during the Crimean war seeing some verses (in *Punch*, I think) to this effect:—

"Is it Kronstadt with a K,
Is it Cronstadt with a C,
Is it Cronstadt,
Or do you leave out the *d*?
Is Sebastopol the word,
Is it Sevastopol you say?
Really it seems so absurd
Not to spell one word one way."

B. W.

ALL SAINTS', SOUTH LAMBETH.

Exactly twelve months since, the extensive and populous parish of St. Barnabas, South Kennington, was divided, and a new parish formed, under the name of All Saints', South Lambeth, containing 11,000 souls. Sir Frederick Fitzwygram, bart., liberally in perpetuity endowed it, and placed as first vicar the Rev. Allen Edwards, jun. The vicar soon filled the iron church (capable of holding 730 persons), and now it is found to be absolutely necessary to proceed with a larger and permanent church. A meeting was therefore held on Thursday, the 2nd inst., presided over by the patron, Sir F. Fitzwygram, at which plans were submitted and adopted, prepared by Mr. Alfred Bedborough, architect. The church is to consist of a very long nave, aisles, large chancel with an apsidal termination, a highly ornamented tower and lofty spire, and open-timbered roof. It will have a peal of bells. The church will be in the Decorated style of architecture, and built of Kentish rag stone. It is intended to commence it at an early date, and to complete the whole during the ensuing year.

CHURCH-BUILDING NEWS.

Highfield.—The new church of St. Barnabas, Highfield, Sheffield, is fast approaching completion. The building is of wall stone, with ashlar dressings, and is about 96 ft. long. The chancel is at the north end. At the left of the chancel a vestry has been arranged, and over this will be the organ-gallery. In a corresponding position with the vestry, and on the other side of the church, will be the children's seats, to which access is gained by a special door. Mr. Edward Gibbs is the architect, and the total cost will be about 7,000*l.*

Canvey Island.—On the 9th ult. the Bishop of Rochester consecrated the rebuilt Church of St. Catherine, Canvey Island, on the South Essex coast. In 1672 the Bishop, having constituted the island a separate living, appointed the Rev. H. Hayes as vicar. A commodious new school was soon erected, and the church was opened regularly for divine worship. A more commodious place of worship being found needful, plans were obtained from Mr. F. G. Lee, architect, and Mr. Thorpe, of Leigh, and Mr. Eaton, of Hadleigh, were jointly entrusted with erecting the church. The new church occupies a central position. The style is Early English, the plan being cruciform. The accommodation is double that afforded by the old church, the benches being capable of seating 200 people. The total cost is 600*l.*

Latchford.—Christ Church, Latchford, is now being enlarged by the addition of a transept and an organ-chamber. The latter is on the north side of the chancel, and the organ, which has hitherto been at the west end of the church, will be removed into it. A new vestry is also being built. The church at present seats scarcely 250 persons; but by the above alterations accommodation will be provided for nearly 100 more. The work is being executed by Messrs. Gibson & Son, under the direction of Messrs. Tate & Popplewell, architects, Manchester. The total cost will be about 850*l.*

Inverurie.—At a meeting of the general committee for carrying out the improvement of the parish church, Inverurie, held on the 19th ult., a report by Mr. Matthews, architect, Aberdeen, as to the repairs and alterations necessary for the interior of the church was approved of, and Mr. Matthews was empowered to accept the following gentlemen's estimates for the necessary work:—Painter work, Messrs. Garvie & Son, Aberdeen; and for the carpenter work, Mr. Wm. Milne, Inverurie.

Sulham.—Sulham Church, near Reading, has been enlarged, by the addition of a new vestry and organ-chamber, and the old chancel has been restored. The builder was Mr. T. Boxall, of Pangbourne; and Messrs. Edgington & Summerbell, of Windsor, were the architects. Mr. Campbell, of London, undertook the decorations, and the oak carving was executed by Mr. Norris, of Sunningdale.

Boxley.—A meeting of the parishioners of Boxley, Kent, was held on the 27th ult., to consider plans by Mr. Christian, architect, for the restoration of the roofs of the nave and side-aisles, and for building an organ-chamber and new vestry on the south side of the chancel. It was resolved to accept the plans, and to undertake the work at a proximate cost to the parish of 1,000*l.*, the Ecclesiastical Commissioners undertaking to restore the chancel. The contracts are to be made with Mr. Vaughan, builder, Tunbridge-road, Maidstone.

Upottery.—The parish church of Upottery, Devon, a Perpendicular building, dedicated to St. Mary, was re-opened on the 28th ult., after restoration. The chancel has been restored by Mr. Ewan Christian, architect to the Ecclesiastical Commissioners, and the main body of the church, under the joint direction of Mr. B. Ferrey, F.S.A., and Mr. E. B. Ferrey, architects. The church consists of chancel, nave, north and south aisles, and western tower. The work now done embraces new roofs throughout the church, of pitch-pine, ornamented with moulded ribs and carved bosses in English oak, covered by Cornish slate. The new seating in the body of the church is of pitch-pine, and in the chancel of English oak. The plastering with which the tower was coated has all been removed from its exterior, and the fine old stonework pointed down. The works have been carried out by the contractors, Messrs. Herbert, and Frederick Burridge, of Exmouth. The stone and wood carving is by Mr. Harry Hems, of Exeter. Mr. Down, Viscount Sidmouth's steward, has superintended the work on behalf of the Building Committee. Mr. James Baker was the contractor's foreman.

Coleraine.—Coleraine parish church was re-opened on the 7th inst., after restoration. An organ-chamber has been erected on the north side of the chancel, together with a new vestry with heating-chamber beneath, the hot-water apparatus being by Messrs. J. Jones & Son. The aisles and chancel have been laid by Messrs. John Powell & Co., Liverpool, with Maw's encaustic tiles. The painting and decoration was done by Messrs. J. & D. Baxter. The whole works have been carried out by the contractor, Mr. D. Christie, Coleraine, at a cost of 800*l.* The architect was Mr. James H. Coyle, Coleraine.

March.—The parish church of St. Wendreda, March, has just been re-opened by the Bishop of Ely, after restoration. The parish church contains an indulgence granted by Cardinal Wolsey, which recites that the Chapel of St. Wendreda was built at March (at that time a hamlet of the parish of Doddington), by permission of Pope Clement VI., then residing at Avignon; and that the permission to build it was given, because the inhabitants of March were frequently prevented, especially in winter time, by the floods, and other hindrances, from resorting to their parish church, at Doddington. The church is a handsome structure, mainly of the Early Perpendicular order, built, probably, about the beginning of the fourteenth century. The church contains many points of interest, though numerous alterations have been made to the original building. It now consists of a nave with north and south arcades of five arches. The nave had originally a high-pitched roof and no clearstory, but now it has a

clearstory of nine windows on each side, and a double hammer-beam roof, both of which date from the latter part of the fifteenth century. The roof is one of the finest in the county, and has well-carved figures and canopies under each of the beams. The chancel has been entirely rebuilt. In the old chancel traces of the fourteenth-century work existed, and the new chancel has therefore been built in the style of that period. The whole of the pews and galleries have been swept away. The roofs have been most thoroughly restored, and all internal works to the walls have been repaired. New floors also have been laid throughout, and new oak doors provided to the entrances. The chancel is, as before stated, entirely new. A carved oak pulpit has been provided with a figure of Christ as the Good Shepherd, carved by Mr. Forsyth, of London. The whole of the works have been carried out by Mr. E. Brown, builder, of Lynn, under the direction of the architect, Mr. W. Smith, of Adelphi, London.

DISSENTING CHURCH-BUILDING NEWS.

Audley (Staffordshire).—The memorial stones of a Wesleyan chapel were laid a few days since. The new structure is of Italian style, faced with red bricks with Hollington stone dressings. It is 60 ft. long by 45 ft. wide inside, and will have sitting accommodation for 725 persons. The pewing, gallery front, rostrum, and other internal fittings will be of pitch-pine stained and varnished; a spacious minister's vestry is provided, also over the same is arranged a recess for the organ; the ceiling will be formed at the tie-beams, and have a deep and enriched cove running round the building; the chapel will be heated with hot air (Blake's system). The cost of the entire buildings and fittings will be about 3,000*l.* Mr. William Watson, of Wakefield, is the architect, and Mr. Charles Hayes, of Audley, the contractor for the works.

Howden. — Plans for the enlargement of Howden Wesleyan Chapel have been prepared by Messrs. Holtom & Connon. From 80 to 100 additional sittings are to be provided, at an estimated cost of 410*l.*

Galashiels. — The new Free Church in the Market-place, Galashiels, was formerly opened on the 21st ult. The building, which is in the Early English style, takes the form of a cross. The total length is about 130 ft., and the general breadth 40 ft. within the walls, the transepts projecting clear at either side about 7 ft. or 8 ft. The church itself is about 90 ft. in length by 40 ft. in breadth, and is seated to accommodate 650, the remainder of the space to the back being occupied by a class-room, capable of holding 150 persons, with vestry, retiring-rooms, &c. The architect was Mr. John Starforth, Edinburgh, and the contractors were,—Mason and joiner work, A. Herbertson & Sons, Galashiels; slater-work, W. & J. Gibb; plaster-work, John Johnstone & Sons; plumber-work, John Tweedie; glazing, James Milroy; and painting, Thomas Graham. The heating apparatus was supplied by Meiklejohn & Son. The total cost was about 5,150*l.*

Ballymena.—Extensive alterations and enlargements have just been completed in the First Presbyterian Church, Ballymena. The church has been re-floored and re-pewed; the galleries, which were too elevated, have been lowered; the vestibules of the right and left galleries have been thrown into the church, and these galleries have been carried back 5 ft. or 6 ft. The accommodation of the church has been in this way very much enlarged. The work has been carried out by Mr. William Moore, Ballymena, under the supervision of Messrs. Young & Mackenzie, architects, Belfast.

Newbiggin-by-the-Sea.—On the 12th ult. two memorial-stones of a new Wesleyan chapel at Newbiggin-by-the-Sea were laid. The buildings are designed in the Early English style, and consist of a chapel 60 ft. 6 in. long internally, by 27 ft. 6 in. wide, with an eastern apsidal end, and presenting a gable to the west end of the street,—a porch on the south side with a vestry adjoining, the former having a heating-cell below it. The architect is Mr. F. R. N. Haswell, of North Shields, and the contracts, amounting to 1,060*l.*, have been let to Mr. Thomas Gibson, of Newbiggin, for masons' and joiners' work; Mr. R. B. Charlton, of Newcastle, for plumbers' and smiths' work; Mr. Preston, of Blyth, for slating; Mr. Montgomery, of Newcastle, for plastering; and Mr. Jameson, of Newbiggen, for painting and glazing.

Tonbridge.—On the 1st of December Mr. Samuel Morley, M.P., laid the memorial stone of a new Congregational Church, Sunday Schools, &c., in this town. The building is well situated in the High-street, near the railway station, and is to cost, exclusive of site, 3,200*l.* The architect is Mr. Chas. Pertwee, of Chelmsford; and the builder is Mr. Samuel Woods, of Weybridge. Mr. A. A. Clark is foreman of the works.

Hillsborough.—A new Wesleyan Chapel was opened at Hillsborough, Sheffield, on the 1st inst. The building, which is estimated to seat 520 persons, has a small spire at the eastern corner. There are front and side galleries. The architect is Mr. Webster, of Sheffield. The total cost is estimated at 3,000*l.*

SCHOOL-BUILDING NEWS.

Seale.—A new school-chapel at the Sands, Seale, Crooksbury-hill, Surrey, was opened on the 13th ult. The architect is Mr. Alfred Guy. The joiners' work and fittings were done by Mr. Diamond, of Farnham; and the glazing by Mr. F. Hughes. The chapel, which is in the Tudor style, is built of Bargate and Bath stone. The inside of the walls is stuccoed with boarded dadoing; the roof is stained, varnished, and filled in with diagonal boarding; the glazing is alternate squares and diamonds, with roundells at the corners. The tracery portion is filled in with stained glass, the glass itself being cathedral, with three tints. Sittings are provided for about 120 persons. The cost was about 500*l.*

York.—The memorial stone of the York Adult School was laid on the 25th ult. Good progress has already been made with the building, which, when furnished, will have involved a total expenditure of about 3,C00*l.* Mr. E. Taylor, of Stonegate, is the architect; and the contractors are Messrs. Walker, Brothers, who undertake to complete the work by April next.

Derby.—The new Royal Class Rooms at Derby were opened on the 19th ult. by the Marquis of Hartington. The new building is connected with the St. Helen's House by an entrance and corridor opening into a spacious stone staircase. On the ground-floor are six class-rooms and a laboratory, each averaging 25 ft. by 15 ft., and 14 ft. high. On the first floor is a large school-room, 60 ft. by 36 ft., and 21 ft. high, with head-master's room and retiring-room. The head-master's room is separated from the large school-room by folding doors, forming ample space for a stage or platform when required for speech days, &c. On the second floor are two dormitories, each 60 ft. by 17 ft. 6 in., and 17 ft. high, and overlooked by a master's bedroom, and on this floor is a bath-room, &c. The large schoolroom and dormitories are warmed by hot-water apparatus, and the whole well lighted and ventilated. The works were carried out by Mr. Humphreys, contractor, under the superintendence of Messrs. Thompson & Young, architects.

Kingston.—A new girls' school for St. John's parish, Kingston, was opened on the 3rd inst. It is 40 ft. long by 20 ft. wide, with a class-room 18 ft. by 14 ft., and will accommodate 124 children. The walls are of local stock bricks, with red brick dressings, and the roofs are covered with red tiles. The boys' schoolroom and class-room will be the same size as those of the girls. The infants' schoolroom, which will occupy the site of the temporary new school-room, will have a class-room 27 ft. by 18 ft. opening into it, and will be fitted with galleries for 160 children. The schools were designed by Mr. A. J. Style, architect, of Thames Ditton, and have been built by Mr. Mason, of Kingston, whose tender for the whole of the buildings, which will accommodate 408 children, was 2,040*l.*

Box. — On the 16th ult., the Bishop of Gloucester opened new parochial schools at Box, near Bath. The entire cost of the building will be 2,480*l.* The architect was Mr. J. Hicks, of Redruth, and the contractors Messrs. J. Bladwell & R. Anst, of Bath.

Waterloo (Liverpool).—St. John's Schools, which were opened on the 7th inst., are from the designs of Mr. T. Mellard Reade, architect to the Liverpool School Board. They contain a large infants' schoolroom and an assembly-room, which can be thrown together by sliding screens, forming one L-shaped apartment, very suitable for public meetings. There are an infants' class-room, a committee-room, and basement under. The style is Free Gothic, brick and wood being the principal materials used, the buildings having a picturesque outline. The lighting of the rooms is from the end and sides, and the whole of them are ventilated by Pott's Patent Ventilating Cornice Company. The contractors are Messrs. Burroughs & Son, of Liverpool, and the cost of the building will be about 1,400*l.*

Books Received.

"Mann" and Manners at the Court of Florence, 1740–1786. By DR. DORAN, F.S.A. 2 vols. London: R. Bentley & Son. 1876.

IN 1737 Mr. Horace Mann was appointed to the English Legation at Florence by Sir Robert Walpole; and Horace Walpole, his son, became soon after Mann's attached friend. For nearly half a century they corresponded freely and regularly. Walpole's letters were periodically returned to the writer, by arrangement, and were published, having been written with that end in view. Those of the other Horace, some thousands in number, for he wrote once, and sometimes twice, a week for more than forty years, remained unused. They were well known, and their publication had been thought of, but they contained, with much that was interesting, "an infinite deal of nothing," were slipshod in style and loose in their spelling (to say nothing of stories equally so), and nothing was done with them. It remained for Dr. Doran, with the light and graceful pen which belongs to him, his good taste and judgment, and his full knowledge of the period, to take them in hand, separate the chaff from the wheat, and produce us a most palatable dish. By using a dozen lines from one letter, twenty from another, and fifty from a third, with comments and elucidations of his own, Dr. Doran has made a consecutive and readable narrative, rich in illustrations of life in Italy during the middle of the last century, and which serves to throw light on many points hitherto obscure.

Mann has not said much about art,—he would probably have written as the other Horace wrote from Bologna, "We don't go a staring after crooked towers and conundrum staircases,"—but we find now and then a passage in that direction not without interest. Here, for example, is a note under date 1762, concerning a well-known English engraver:—

"Strange has returned hither from Rome and Naples with such a numerous and well-chosen treasure of his own drawings from the most capital pictures there, as will abundantly repay him for the time he has spent abroad. He has been very much distinguished wherever he has been, and particularly admired, for a new method he has invented, of *drawing in colours*, which, by great application, he has reduced to certain and fixed principles; so that at the same time that this elegant invention will, as he says, be of great use to him in engraving those drawings, it has a more extraordinary and beautiful effect in them than can be either described or conceived, without seeing them. They give the clearest idea of the originals and of their colourings, and by that means they themselves have the merit of becoming pictures of a much more delicate nature than miniatures. Mr. Strange is impatient that you should see them, and begs his very respectful compliments to you. Many people *I know* will vye with each other for the purchase of those drawings, though the cost will be very high; but nothing will tempt him to part with them, till he has engraved them; and by one or two at a time, the whole will at least employ ten years to engrave."

Strange, when in Italy, was chosen member of the Academies of Rome, Florence, and Bologna; and was appointed Professor of the Royal Academy of Parma. He became Sir Robert in 1787.

The two volumes are tastefully bound, and a large class of readers will feel much indebted to Dr. Doran.

A Course of Painting in Neutral Tint. With Twenty-four Plates, from designs by R. D. LEITCH. Cassell, Petter, & Galpin.

WE have noticed previously two small instruction books, by Mr. Leitch, in "water-colour" and "sepia painting." The present book, uniform with the above, is intended as a kind of connecting-link between them; the author defining as "painting in neutral tint" the use of two colours or tones only, the studies being supposed to be executed in sepia with the addition of a single grey tint. We confess that we can scarcely see the validity of this distinction, or why, if there is a special instruction-book for drawing in two colours, there should not be one for three colours, and so on. A drawing is either monochrome or coloured. We can hardly see where any intermediate line can be drawn.

Every one, however, may not have the same feeling on this point, and there is certainly no other objection to be urged against this third contribution to the series, which, in regard both

to the artistic feeling of the designs and the execution of the chromo-lithographs, appears to us to be rather superior, if anything, to either of the other two books. Any student going through the book would be likely to acquire a considerably increased feeling for general balance of tone and composition in landscape effect; and the author is careful to point out that copying is a means and not an end. The general remarks and criticisms as to the practice of the art are as well judged and suggestive as in the former publications.

A Handy Book of Ornamental Conifers, &c. By Hugh Fraser, Fellow of the Botanical Society of Edinburgh. Blackwood & Sons, Edinburgh and London.

This is a compact and convenient-sized book, giving a synopsis of the many varieties of this large class of trees, so extensively used in what may be termed the architecture of gardens. The *habitat*, the general appearance and characteristics, and the nature of the situation most favourable to each variety, are shortly stated. To this is added a considerably extended section on rhododendrons, a class of plant generally used in what the French term *massifs*, and the value of which in ornamental gardening the author thinks is under-rated. The extensive adoption of rhododendron planting in gardens, however, if carried out now, will only be a revival of an old, and at one time, rather prevalent taste. As to the beauty and individual character of the plant, when so used, we quite concur with Mr. Fraser. The book seems well done, and likely to be very useful to those whom it directly concerns.

Miscellanea.

Fireclay.—At the supplementary meeting of the Iron and Steel Institute, held in London on the 25th ult., the subject of "Fireclay and other Refractory Materials" was discussed in a paper by Mr. G. J. Snelus, who said that all concerned in the manufacture of iron and steel would admit that it was of the utmost importance to obtain good materials for building their furnaces. It was found that the presence of alkaline in sensible quantity,—say, about 1 per cent.,—conferred so much fusibility upon a clay as to render it unsuitable for very high temperatures. There was a practical point in the management of fire bricks which was too often overlooked. Bricks were very porous bodies, and absorbed a great deal of moisture, even when under cover, and, of course, much more when allowed to get wet; in fact, apparently dry bricks often contain a good deal of water, and if put into a furnace in this state and the heat is got up rapidly, the bricks crack and crumble to pieces. This was especially the case with silica bricks, and the writer had known instances of bricks being condemned as chemically bad when the fault lay with those who used them. Instead of properly drying them, it was as well in the case of silica bricks to actually set them as hot as they could be handled. In all cases when a furnace was started, and especially with Siemens' furnaces, a very small fire should be kept up for several hours, and then very gradually increased. This plan would add weeks to the life of these furnaces.

London and Middlesex Archæological Society.—The *conversazione* of the London and Middlesex Archæological Society was held on Wednesday evening, the 15th inst., at Ironmongers' Hall, Fenchurch-street. The visitors were very numerous. A large collection of antiquities more or less connected with the City of London was exhibited in the great hall and corridor of the building, including some Roman remains — pottery, coins, and implements — recently discovered in excavating for the premises of the National Safe Deposit Company in Queen Victoria-street; Mediæval armour, exhibited by Mrs. J. Walker Baily; pre-historic remains, consisting of bones, flint implements, and pottery from a mound at Cissbury, excavated during the present year, with models and plans of excavations, exhibited by Colonel Lane Fox; some interesting full-size drawings of painted glass in Long Melford Church, and of wrought iron work, exhibited by Mr. Charles Baily, &c.

The New National Opera-house.—H.R.H. the Duke of Edinburgh laid the first stone of the New Opera-house, Thames Embankment, on Thursday last, and expressed good wishes for the success of the undertaking.

School Progress.—An evening paper states, on the authority of the annual report of the Committee of Council on Education, that up to the 30th of April last the number of Board schools for which the Education Department had sanctioned the borrowing of money from the Public Works Loan Commissioners was 941. The total expenditure thus sanctioned on behalf of the school buildings amounts to about 4,200,000*l.*, and represents new accommodation for some 375,000 scholars. The repayment of loans is spread over a certain term of years, according to arrangement with the commissioners. The actual expenditure for the four years commencing with Michaelmas, 1870, reaches nearly 3,500,000*l.* Taking some of the principal school districts, we find the estimated cost of school buildings per child provided for ranges from 7*l.* 17*s.* 6*d.* at Nottingham to 17*l.* 7*s.* 10*d.* at Bradford; of both sites and buildings together from 9*l.* 12*s.* 10*d.* to 22*l.* 14*s.* in the same two towns.

"Corn, Coal, and Finance." — Mr. J. Ebenezer Saunders, as chairman of the Corn, Coal, and Finance Committee of the City of London, entertained at the Albion, on Wednesday evening last, the chairmen of the various sections of the coal trade and other guests. In reply to various toasts, admirably well proposed by the Host of the evening, Sir Henry Havelock, M.P., and Admiral Ommaney, spoke for the army and navy; Sir Thos. Chambers, M.P., for the House of Commons; the new Lord Mayor (Alderman Cotton, M.P.) for the Corporation; Sir Jas. Hogg, M.P., for the Metropolitan Board of Works; Mr. Godwin for Art, Literature, and Science; and Dr. Shaw for the Guilds. Some remarkable statements were made as to the progress of the coal trade in London: the quantity on which the tax will be levied this year is estimated at not less than 8,000,000 of tons,—the largest yet known.

The Cadogan and Hans-place Estate.—At the first ordinary (statutory) general meeting of the Cadogan and Hans-place Estate Company (Limited), held on the 11th inst., the chairman (Col. Makins, M.P.) stated that the greater portion of the capital required for the undertaking having already been subscribed, the deed of assignment and trust deed had been duly executed and debentures allotted. The works for the northern road, being a continuation of Pont-street, through Sloane-street, into Wilton-place, would, he said, be commenced forthwith, the tenders having (as already announced in the *Builder*) been accepted. Many applications for sites for mansions had been received, in addition to the forty-one plots taken up by Messrs. Trollope, and the new roads will be completed as rapidly as possible. The report was adopted.

Temple Bar.—A deputation from the City Lands Committee and Commissioners of Sewers waited upon Lord Henry Lennox, First Commissioner of Works, on the 7th inst., to call his attention to the state of Temple Bar as it affects the approaches to the new law courts. Plans were submitted for the widening of Fleet-street both east and west of Temple Bar. The City authorities were willing to remove Temple Bar, and contribute to the scheme by removing the houses on the north side. His lordship expressed the great interest he felt in the matter, but at the same time pointed out how very small a share the City authorities, under the proposed arrangement, would take on themselves. However, he promised to call the attention of the Government to the matter.

Smethwick Sewerage.—The Smethwick Local Board having received a communication from the Town Clerk of Birmingham stating that he was instructed to take proceedings against the Board in order to put a stop to a nuisance occasioned by the pollution of the Aston and Hockley Brook as it flows through the borough, unless within a week the Board gave an undertaking to abate the nuisance, a special meeting of the Board was convened, and it was decided to give the undertaking required. Mr. Bramwell, C.E., has been retained by the Board to advise and assist them in carrying out a system of sewering for the district.

Asphalte.—Sir John Kelk is having paved with Claridge's patent asphalte the floor of his skating-rink at the Priory, Stanmore. At the Palace of Westminster, the State Office court and adjoining courts are being paved for carriage traffic by Claridge's Asphalte Company. The whole is to be completed before the meeting of Parliament.

Architectural Association of Ireland.—A meeting of the above body was held on Thursday evening, the 2nd inst., Mr. T. H. Longfield in the chair, when a paper was read by Mr. W. A. Robinson (hon. sec.), on "Foundations," which led to a long and spirited debate. Mr. Fennell explained the various methods employed in the works carried out under the War Department, where the soil is untrustworthy to any depth. He also illustrated the method of building a brick foundation for a factory chimney. Mr. W. G. Doolin explained the method adopted by him in the case of some public buildings at Waterford, the foundations of which were on a foreshore, and where there was found buried an old quay wall.

New Market at Widnes.—A new public market for Widnes, Cheshire, was opened on the 1st inst. The market is situated a short distance from the railway station. It consists of two departments, divided in the centre by iron columns. The height from the floor to the roof is 22 ft., the length is 140 ft., and the width 70 ft. There are thirteen shops, and the stall space is in the centre of the market. The whole of the shops have been let, and a large portion of the stall space has also been taken up. The market has been built from the designs of Mr. Hughes, of the firm of Pierpoint, Hughes, & Pierpoint, and the cost is estimated at 3,400*l.*

Shakspeare's Church at Stratford-on-Avon.—The Vicar of Stratford-on-Avon, Dr. J. D. Collis, has just issued an appeal on behalf of the restoration of the church of Holy Trinity. He wants 10,000*l.* to restore the fabric of Shakspeare's church as Shakspeare saw it, and 4,000*l.* or 5,000*l.* more to fit up the interior properly and in better fashion than at present. He has hopes that the Freemasons of England, India, Germany, and America, will undertake the former part of the task as soon as the Grand Master, the Prince of Wales, returns from India; the second part of the work he thinks might well be left to the public spirit of Stratford and Warwickshire.

Close of the Preston Industrial Exhibition.—This exhibition, which was noticed at some length in the *Builder* a short time ago ("*En Route* through Preston"), was brought to a close on the 4th inst., after an existence of seventeen weeks, having been opened on Monday, the 9th of August. The report of the General Committee states that the receipts have exceeded 7,000*l.*, and that the total number of admissions has been upwards of 200,000. The net balance, after defraying all expenses, is to be devoted to the funds of the Institute for the Blind and the Institution for the Diffusion of Knowledge.

Cornish Granite for Road-making.—"The granitic backbone and the ribs of the neighbourhood of Penzance," says the *Cornish Telegraph*, "are being hewn to pieces and the pieces 'spalled' into bits. Worse, they are sold to north-east England and to Wales, to make roads of. With a good deal of enterprise Mr. James Runnalls, of Penzance, has founded and carries on a large export trade in granite and elvan 'metal.' As he destroys no dolmens or cromlechs, and employs largely (for he and his customers prefer hand-cracked to machine-crushed stones), we all wish him success."

Lambeth Earthenware.—Messrs. Howell & James, of Regent-street, have filled some new galleries on their premises with original works of decorative art in "Lambeth Faïence," designed by the director and students of the Lambeth School of Art, and these are now on view. The collection includes some very charming specimens, both of the stoneware and painted ware. Considerable progress has been made in both, and of the latter, some of the works, especially those by Miss Watts, are exceedingly artistic and agreeable.

Liverpool Art Club.—On the 13th inst. the Liverpool Art Club entertained at dinner Sir Henry Cole, C.B., Professor Sidney Colvin, and Lord Houghton. In the course of the evening Professor Colvin delivered an address on "The Place in the Art and the Imagination of Greece held by the Deities of Life and the Earth's Produce, Death, and Resurrection."

Newark Castle.—The Commissioners of Woods and Forests having intimated their intention of repairing the Castle, Mr. Goddard, architect, of Lincoln, has examined the edifice, with the view of reporting on the work necessary to preserve the ruins from further dilapidation.

The Channel Tunnel.—M. Lavalley, president of the French Society of Civil Engineers, and inventor of an apparatus which was used in the construction of the Suez Canal, announces that fifteen experimental soundings have been made in the Straits of Dover. In none of them were the results unfavourable to the possibility of boring a tunnel to join the two countries, and M. Lavalley adds that all the engineers are agreed that the completion of the project is only a question of time and money.

Burghley House, Stamford.—The Cowan Patents Company, of London, have just completed the erection of an apparatus for warming throughout this fine old mansion, the seat of the Marquis of Exeter. The boilers are in the basement, and the system of hot-water pipes extends to the top galleries, warming on its way the corridors, great hall, and staircases. The pipes are so arranged that any one part may be warmed separately, or the whole together. The apparatus is said to be giving great satisfaction.

The Royal National Hospital for Consumption, Ventnor.—Since last year an additional block of houses has been opened, and by the end of this month the two last blocks contemplated in the original design of the building will be completed. The hospital will then contain sixteen houses in eight blocks, and will provide accommodation in separate bedrooms for 100 male and female patients. Funds are urgently needed.

Restoration of an Ancient Effigy.—There has just been erected in Grappenhall Church an effigy of Sir Hugh Boydell, who flourished in the county of Cheshire in the thirteenth century. Some time ago the original effigy was discovered, and, owing to the process of decay, it was found to be minus its head and arms. Mr. Warrington Wood designed a model, from which the missing parts were restored, and the completed figure has been erected in a niche in the chancel.

Reopening of Columbia Market.—This market was again opened on Wednesday the 15th inst., under the auspices of two or three of the great railway companies. The premises consist of twenty-four small shops and twelve large shops, with residences containing twelve rooms. There are stands for 100 persons, and fifty-six cellars. The rent charged is merely nominal. Already many persons have taken possession.

Another Candidate for Honours.—At a meeting of the Twickenham Local Board, on the 9th inst., a letter was read from Mr. W. H. Denham, of Southsea, offering to carry out the sewage works by some new system, by which the water would not only be rendered a valuable commercial commodity, but even the foul gases in the sewers,—"the father of fevers," the letter called them,—would be transformed into health-giving media.

Assessment.—Mr. William Eve, of London, has been appointed by the guardians of Caistor Union to assess the whole of the ratable property in the town of Great Grimsby, except the docks and railway, the ratable value of which have, on appeal, been recently settled by the Railway Commissioners.

The Sunderland Building Trades.—The Sunderland Builders' Association has issued the following notice to their employers:—"In accordance with previous arrangements, the wages of bricklayers and masons will commence to be paid at 33s. per week, those of labourers at 24s. per week, from December 1st, 1875."

Masonic Hall.—The new Masonic Hall for the Londesborough Lodge, at Bridlington Quay, was dedicated to Masonry by Dr. S. P. Bell, G.S.D., of Hull, on the 7th inst. The building has been designed and superintended by Bro. Bakewell, of Leeds, and the work has been executed by Bro. Hudson, of Sewerby.

Christmas Cards.—Messrs. Dean & Son have sent us a pile of Christmas Cards, ranging from as low as 1d. each. This serves to show how general the practice of sending such must have become. Some of them are pretty enough.

TENDERS

For works at 128, High-street, Stoke Newington, for the Incorporated Society of Licensed Victuallers. Messrs. Nunn & Green, architects:—

Toms	£1,640 0 0
Grimwood & Sons	1,295 0 0
Pickersgill	1,245 0 0
Anley	1,175 0 0
Cole	1,145 0 0
Lamble	909 0 0

For new house and refreshment-rooms, Castle Brewery, Newport, Monmouthshire, for Messrs. Blake & Co. Mr. E. A. Lansdowne, architect:—

Richards	£970 0 0
J. Williams	950 0 0
Christophers	950 0 0
Linton	944 0 0
Miles	929 0 0
Bamfield	908 0 0
W. Williams & Sons	895 0 0
Thomas & Webb (accepted)	880 0 0
G. Jones	860 0 0
W. Jones & Sons	857 0 0

For erection of new stables, &c., for Messrs. Greenall & Co., at Wilderspool. Mr. R. Davison, architect. Quantities supplied by Messrs. R. L. Curtis & Sons:—

Gibson & Son	£3,041 0 0
Collin & Son (accepted)	2,890 0 0
Iron Stable Fittings.	
Cottam & Co. (accepted)	£130 4 7

For the extension of Messrs. Greenall & Co.'s Brewery, at St. Helen's, Lancashire. Mr. R. Davison, architect. Quantities supplied by Messrs. R. L. Curtis & Sons:—

Builder's Work.	
Harrison (accepted)	£10,970 0 0
Iron Work.	
Moreland & Son	£3,310 0 0
Daglish & Co.	5,790 0 0
Head, Williams, & Co.	5,540 0 0
Robinson, Cooks, & Co.	5,525 0 0
Laidlaw, Sons, & Caine (accepted)	4,931 0 0
Copper.	
Dale	£1,316 0 0
Pontifex & Sons	1,277 0 0
Suddeley & Co.	1,272 0 0
Oxley & Son (accepted)	1,083 4 6

For the erection of a pair of semi-detached residences at Bromley, for Mr. John Radmall. Quantities by Messrs. Goodman & Vinall. Mr. E. Hoole, architect:—

Roberts	£3,962 0 0
Kilby	3,790 0 0
Haydon	3,650 0 0
Payne & Balding	3,543 0 0
Grubb	3,363 0 0
Carter (accepted)	3,347 0 0

For a villa residence at Kingswood, Surrey. Mr. E. F. Roberts, architect. Quantities by Messrs. Strudwick & Mennie:—

Cook	£1,500 0 0
Cullum	1,498 0 0
Downs	1,469 0 0
Shearburn	1,438 0 0
Hards	1,398 0 0
Holdsworth	1,387 0 0
Nightingale Bros. (accepted)	1,248 0 0

For alterations and additions to a cottage residence, called "The Warren," at Edenbridge, for Mr. C. L. Lewis. Mr. E. Hoole, architect:—

Shorter	£325 0 0
Haydon	275 0 0
Snook (accepted)	189 0 0

For 6,480 superficial feet of roofing over oxide ground, for the West Ham Gas Company, at their works, Stratford. Mr. E. H. Thorman, engineer:—

Bangs & Co.	£586 0 0
Rivett	563 0 0
Perry & Co.	499 0 0
Norton & Son	428 0 0

For alteration and building new billiard-room, at the Plough, High-street, Notting-hill. Mr. H. J. Newton, architect. Quantities by Mr. H. Budd:—

Godden	£810 0 0
Taylor	807 0 0
Boden	785 0 0
Hockley	783 0 0
Cooke & Green	709 0 0
Wells (accepted)	666 0 0

For erection of new premises, Soho, for Messrs. Sanders & Co. Mr. J. Perry, architect:—

Wilson	£2,180 0 0
Wood	2,097 0 0
Sharp & Maxwell	2,055 0 0
Target	1,976 0 0

For building six houses. Quantities prepared by Mr. Ormes:—

Strange & Sons	£5,773 0 0
Penn	5,690 0 0
Perigoe	5,295 0 0
Robertson Bros. & Young	4,983 0 0

TO CORRESPONDENTS.

L. P. C.—C. H. T.—J. W.—L.—V. H.—F. C.—M.—F. C.—J. S. H.—P. & B.—J. P.—One of the Humbugged.—Another Humbugged.—W. R.—J. K. C.—B. W.—J. R.—F. T. M.—T. M. G.—H. J. N.—E. H. L. B.—I. S. (numerous town-halls are illustrated in our volumes).—S. & M. (should send list of amounts).—A. M. (not yet commenced).—Fairplay (common-sense would say the commission should be paid on the *difference* only, viz. 500*l*. But it cannot be decided *ex parte*).—F. J. P. (shall have attention next week).—Mr. J. (ditto).—A. G. (ditto).—R. M. (ditto).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, list of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

SPECIAL NOTICE.

Christmas Week.—*The* BUILDER *for the week ending December 25th, will be published on* **Thursday, 23rd** *inst., at the usual hour.*

Advertisements for insertion in that issue must therefore reach the Office before Three o'clock P.M. *on* **Wednesday, 22nd** *inst.*

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——— the same work on large paper, 2 vols. Atlas folio, 100 plates, 67 of them in gold and colours, the engraved plates on India paper, published at 50l. half bound morocco, gilt tops, now offered for 21l. 1842.
A few copies of this grand work on Moorish Architecture have turned up at the sale of the Author's Library, and they are offered for a short time at the low prices affixed. For the last five years it has been almost impossible to procure a copy.
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By order, W. GRANGE, Clerk to the Board,
Great Grimsby, December 9th, 1875.

INSTRUCTING WARDERS of SMITHS and CARPENTERS WANTED, for the Convict Service.—Candidates must have a good practical knowledge of general Smith's and Carpenter's work respectively. Also a general knowledge of Builder's work, and be able to measure and estimate such work. Ages, 24 to 42 years. Commencing salary and allowances worth about 100l. per annum, with the prospect of attaining a maximum of 150l.—Applications, with statement of previous employment and testimonials as to character and technical qualifications to be sent at once to the Surveyor General of Prisons, 44, Parliament-street, Westminster.

HESTON and ISLEWORTH.—URBAN SANITARY DISTRICT.—APPOINTMENT of SURVEYOR.
Notice is hereby given that the Local Board of the above District will, at their meeting to be held at the Townhall, Hounslow, on TUESDAY, the 28th day of DECEMBER instant, at FOUR o'clock in the afternoon, proceed to the ELECTION of a SURVEYOR for the said district. The salary will be 150l. per annum, and the person appointed will be required to reside in the district, to give the whole of his time to the duties of the office, and to discharge all the duties now or hereafter to be prescribed by the bye-laws of the Board under the head of "Duties of Surveyor." A copy of the bye-laws, now being framed, containing such duties, will be supplied to any intending Candidate on application at my Office, at Isleworth. Candidates are requested to send in their applications, with testimonials, addressed to the Clerk, at his Office at Isleworth, on or before MONDAY, the 27th instant, and to attend personally at the meeting of the Board above mentioned.—Dated this 14th day of December, 1875.—By order of the Board, HICKSON BRIGGS, Clerk.

AN ARCHITECT and SURVEYOR, in good practice in London, and holding a public appointment, has a VACANCY for a PUPIL. Personal attention given. Premium very moderate.—Address, 861, Office of "The Builder."

TO PARENTS AND GUARDIANS.
A FIRM of Railway Contractors have a VACANCY for an ARTICLED PUPIL. [To a well-educated youth having a liking for the profession, a moderate premium only required.—Address, P. care of F. W. Potter & Co. 19 and 21, Queen Victoria-street, City.

AN ARCHITECT and SURVEYOR, in the country (holding a public appointment), requires an experienced ASSISTANT. Must be a good accountant and well up in his work. State age and salary required. Also, an ARTICLED PUPIL, with a premium. Good character and references indispensable.—Address, H. 220, Southwark Bridge-road, London.

WANTED (a Constant Place), a MAN, as GLASS CUTTER, to Cut and Pack Glass, serve Customers, and get up Orders in a Glass, Lead, Oil, and Colour Warehouse.—Address, stating terms and references, WATKIN & SON, Sheep-street, Northampton.

WANTED, immediately, a Young MAN, of thorough business habits in the building profession, who is a first-class correspondent, with good address, and a capital of 500l. to carry out the working of an established invention. He will be required to wait upon architects, take orders, and see to their being promptly executed. If found suitable for the position, he will be received as a Partner. References required, and the strictest investigation made. No agents treated with.—Address, 892, Office of "The Builder."

WANTED, in a Civil Engineer's Office, an experienced GENERAL DRAUGHTSMAN, with a knowledge of architectural work.—Apply by letter, stating terms and references, to Mr. K. FILLITER, 16, East Parade, Leeds.

TO LAND SURVEYORS.
WANTED, an ASSISTANT, who can Survey correctly, and is a good Draughtsman. Age, about 22. State terms and experience in surveying.—Address, 871, Office of "The Builder."

WANTED, in a Surveyor's Office, an ASSISTANT, competent to abstract and bill quantities, and used to the general routine of an office.—Address, stating age, salary, and references, G. A. care of Steel & Jones, Advertising Agents, Spring-gardens, S.W.

WANTED, for a few months, in the Office of a Civil Engineer, holding a Borough appointment in the provinces, a qualified practical ASSISTANT. He must be a first-class surveyor and leveller, and thoroughly acquainted with the construction of girder bridges, embankments, harbour works, &c.—Address, stating terms and other particulars, to No. 843, Office of "The Builder."

WANTED, by an Architect in the Country, an IMPROVER.—Address, stating age and terms, E. G. THOMAS, Architect, Menai Bridge, North Wales.

WANTED, a BUILDER'S CLERK, competent to Take Out Quantities and Prepare Estimates.—Address, stating references and terms, W. BOBBINS, Builder, Warwick.

WANTED, a good WRITER and GRAINER. One used to a jobbing trade. Constant employment. Must be a sober man.—Address, stating wages, Z. Smith's Library, Worthing.

WANTED, immediately, ONE or TWO JOINERS or CABINETMAKERS for Walnut and Mahogany Work.—Apply to ROBERT PAGE, Builder, 3, Berkley-road, Gravesend, Kent.

WANTED, several first-class STONE CARVERS for Gothic and Classic work.—E. WILLIAMS & MILLSON, Architectural Sculptors, 24, City-road, Manchester.

WANTED, a good MONUMENTAL and GENERAL MASON. Constant employment for a steady man.—Address, W. BROUGHTON & SON, High Wycombe, Bucks.

WANTED, a practical JOBBING BRICKLAYER, at once. If suitable may lead to a constancy.—Apply with terms, to Mr. PAMPHILON, Chigwell, Essex.

WANTED, a good Glazier, who thoroughly understands his business. Also a young Man, as CASHIER, who possesses a knowledge of plumber's brass work. Constant situations. Good characters indispensable.—Address, WILLIAM N. FROY, Brunswick Works, Hammersmith, W.

WANTED, by a London Firm, a thoroughly competent and energetic SHOP FOREMAN of JOINERS.—Address, stating age, wages required, and references, 836, Office of "The Builder."

TO PLUMBERS, GLAZIERS, AND GASFITTERS.
WANTED, a middle-aged WORKING FOREMAN, a good workman, who could take charge of a small business in the aristocratic suburbs of a large town. Must be able to measure, square, and price work.—Address, J. F. P. 290, Broomhill, Sheffield.

TO EXPERIENCED FOREMEN OF JOINERS.
WANTED, a competent SHOP FOREMAN, to undertake the Management of the Joiners' Department.—Applications, stating particulars, age, and salary required, to be made in writing, to GEORGE SMITH & CO. Builders, Commercial-road, Pimlico. Anonymous communications will not receive attention.

WANTED, a FOREMAN of SMITHS and FITTERS. Must be a thoroughly practical man, and be able to make working drawings and estimates, and have a knowledge of ornamental wrought and cast iron hot and cold water gas work, &c.—Apply by letter only, stating salary required, to J. STONE, Iron Works, Union-street, St. George's-road, Southwark.

TO SMITHS, GASFITTERS, AND FOUNDERS.
WANTED, a FOREMAN, to Superintend a GENERAL SHOP of about twenty-five men. Must write a fair hand, be capable of making up cost and detail for charging out hot-water, kitchen-range, and bath work.—Apply, personally, to HAYWARD, BROTHERS (who are about to enlarge their manufacturing premises), 187—189, Union-street, Borough, S.E. between TEN and TWO o'clock; or by letter, stating salary required and previous engagements for the last few years.

SHOP FOREMAN.—WANTED, a thoroughly practical SHOP FOREMAN of JOINERS (a permanent situation for a good man). None need apply but those who have filled a similar situation.—Address, stating reference and wages required, to Messrs. GODDARD & SONS, Builders, Farnham.

FOREMAN of PAINTERS WANTED.—One accustomed to take charge of a number of men, and to making estimates.—Apply by letter only, stating age, salary required, &c. to H. T. Messrs. T. & W. Banting, 27, St. James's-street, Piccadilly, S.W.

CLERK, STOREKEEPER, &c. WANTED, in the Smiths' Department of a Building Firm. One with a knowledge of bell, gas, and other smith's material and work preferred. Address, in own handwriting, with references, and stating salary required. F. C. J. 2, Cambridge-terrace, Pimlico, S.W.

ASSISTANT.—Wholesale Plumbing and Gasfitting Trade.—WANTED, an experienced and pushing Man, who thoroughly understands the duties of Shopman, and would be willing to act as occasional Town Traveller in the above line. Must be well acquainted with the London trade, and give first-class references as to respectability.—Address, F. R. care of Messrs. Deacon & Co. Leadenhall-street, E.C.

WANTED, an ENGAGEMENT in an ARCHITECT'S Office, by a pupil of an eminent firm of Architects in the West End. Town or country, can prepare working drawings, &c. Salary moderate.—Address, R. P. 62, Falkland-road, Kentish-town, N.W.

TO IRON WORKS AND IRONMONGERS.
WANTED, an ENGAGEMENT, as TOWN TRAVELLER, by a first-class man of business, who has a thorough knowledge of the trade, and is a good salesman.—Address, B. B. H. 54, Murray-street, City-road, N.

WANTED, an ENGAGEMENT, by a Gentleman, of twenty-five years' experience in the profession, and a first-class Draughtsman and Artist, to ASSIST an ARCHITECT in the Preparation of Designs, Perspectives, and Detail and Working drawings. Terms moderate.—Address, 907, Office of "The Builder."

WANTED, a RE-ENGAGEMENT, as CLERK of WORKS, GENERAL FOREMAN on an estate, or Job. Carpenter and joiner. Aged 36. Well up in all branches. Setting out measurements, &c. Just completed three years' job. First-class references.—Address, B. 7, Alderney-road, Mile-end.

WANTED, a RE-ENGAGEMENT, as CLERK of WORKS, or GENERAL FOREMAN. Thoroughly practical in the Trade.—Address, W. F. 8, Palm-street, Old Ford, E.

WANTED, a RE-ENGAGEMENT, as SHOP FOREMAN. Joiner by trade. Five and a half years with last employer. Good references. Thoroughly experienced.—Address, LINTON, 26, Thorne-road, South Lambeth, S.W.

TO BUILDERS AND CONTRACTORS.
WANTED, a RE-ENGAGEMENT, as SUPERINTENDENT of WORKS. Thoroughly practical in branches of building trades. First-class testimonials.—Address, A. B. B. 7, Wellington-road, St. John's Wood.

TO ARCHITECTS.
WANTED, a RE-ENGAGEMENT, by a good and efficient GENERAL ASSISTANT. Good draughtsman. Well up in construction and details. Good references.—Address, 897, Office of "The Builder."

TO BUILDERS AND CONTRACTORS.
WANTED, a RE-ENGAGEMENT, as FOREMAN, to take charge of a Job. Bricklayer by trade. Country not objected to. Good references.—Address, S. A. 12, Lavinia Cottage, Church-street, Canning-town, E.

TO ARCHITECTS.
WANTED, a RE-ENGAGEMENT. Can prepare plans, details, and specifications for all kinds of work. Has been accustomed to the management of offices. Good experience. High class references.—Address, 881, Office of "The Builder."

WANTED, a RE-ENGAGEMENT, as CLERK of WORKS or GENERAL FOREMAN. Well acquainted with all requirements. Permanency the chief object. Satisfactory arrangements at an early interview.—Address, A. B. No. 33, Westbourne-road, Barnsbury, London, N.

TO SURVEYORS AND ARCHITECTS.
WANTED, a RE-ENGAGEMENT, by a good ASSISTANT. Well up in general office work. Salary 30s. per week. Good references, &c. Permanent situation required.—Address, C. S. Borough Surveyor's Office, 29, High-street, High Wycombe, Bucks.

WANTED, a RE-ENGAGEMENT, by an experienced SHOP FOREMAN of JOINERS. Well up in machinery, management of men, taking off quantities, and setting out. Good draughtsman. Steady, persevering, and energetic. Good references and testimonials.—Address, S. No. 26, Allen-street, Birmingham.

TO BRICK MANUFACTURERS AND OTHERS.
WANTED, a RE-ENGAGEMENT, by an experienced Man, to DIG, MAKE, and BURN CLAMP or KILN BRICKS, &c. at per 1,000, or otherwise, labour only. Good reference for many years will be given.—Address, A. B. care of Mrs. Glover, 125A, Bastgate, Rochester, Kent.

WANTED, a RE-ENGAGEMENT, as GENERAL FOREMAN of WORKS, or as CLERK of WORKS, by a thoroughly practical Builder's Foreman, aged 40. Has carried out large jobs, and has good reference to London builders and architects. Strictly sober and energetic.—Address, W. P. 15, Biggs-street, North-end, Fulham.

WANTED, a SITUATION, by a young Man, Carpenter and Joiner, after Christmas, as IMPROVER at the bench in a good shop.—Address, T. FAIRBURST, No. 24, Charteris-road, Finsbury Park.

WANTED, a SITUATION, as FOREMAN BRICKLAYER, by a respectable Man. Total abstainer. Or Piecework, Rod or Job. Well up in building alterations, repairs, underpinning, or jobbing.—Address, Mr. JAMES 2 W. 2, Newcomen-road, Wanstead.

WANTED, a SITUATION, for a steady industrious Youth, who is well up in Mathematics and Drawing, having gained sixteen certificates and several Queen's Prizes in various branches of science, of the Science and Art Department, South Kensington.—Address, Mr. J. RAVES, Welwyn, Herts.

TO PAINTERS AND DECORATORS.
WANTED, a SITUATION, as FOREMAN or MANAGER. Twenty years' experience as master. Will undertake surveying, drawing specifications, making estimates, and dilapidations generally. Town or country.—Address, C. H. 77, Market-street, Edgware-road, W.

WANTED, by the Advertiser, a SITUATION as TIME or STOREKEEPER. Good references. Will shortly be disengaged.—Address, C. B. 15, Mortlock-gardens, Hardess-road, Peckham, S.E.

WANTED, by the Advertiser, a SITUATION in a WORKSHOP or FACTORY, to have CHARGE of MACHINERY. Thoroughly understands sawing-machinery. Moderate salary only expected.—Address, J. B. C. 423, New Cross-road, London, S.E.

TO BUILDERS AND DECORATORS.
WANTED, by the Advertiser, a SITUATION, in a London Builder's Office, to take the MANAGEMENT. At present in a similar position. First-class reference. Salary, 40s. per week.—Address, 874, Office of "The Builder."

TO ARCHITECTS.
WANTED, by a thoroughly qualified ASSISTANT, of many years' experience, a RE-ENGAGEMENT. Good designer and detail draughtsman. High reference.—Address, 807, Office of "The Builder."

WANTED, by a practical Man, a RE-ENGAGEMENT as WORKING FOREMAN of BRICKLAYERS, or GENERAL FOREMAN. Aged 33. Town or country. Good reference.—Address, L. care of Mr. Newman, 4, Lance-road, Hounslow, W.

TO MASTER BUILDERS AND OTHERS.
WANTED, by a practical hand, a RE-ENGAGEMENT, as ENGINE-DRIVER. Has been twelve months in an Engine-room at 36s.—Address, J. A. 27, St. George's-street, Battersea-park-road.

TO BUILDERS.
WANTED, by a steady, energetic young Man (a good joiner) a PERMANENCY to WORK a TREVING-UP MACHINE, Cross-cut, or Chalk Line.—Address, with wages and full particulars to G. SIMPSON, Post-office, Vauxhall, London, S.W.

WANTED, by an experienced CARPENTER and JOINER, a constant SITUATION. Used to all kinds of work in the jobbing trade. Blinds, French polishing, carpet planning, &c.—Address, W. E. S. 5, Clirine-road, Penge, S.E.

TO BUILDERS, PLUMBERS, &c.
WANTED, by an experienced PLUMBER, Painter, Lead and Sash Glazier, and Paperhanger, an ENGAGEMENT. First-class reference.—Address, S. H. care of Mr. Laurence, 41, St. Andrew's-hill, City, E.C.

WANTED, to APPRENTICE, a Lad, aged 14, to a Country BUILDER and CARPENTER, where he will learn the practical part of the business. Has had a fair education, and is quick at figures.—Address, C. S. 14, Middleton-road, Dalston, N.E.